

VIDEO CASSETTE RECORDER

VO-9850P



SONY[®]

SERVICE MANUAL

SPECIFICATIONS

System

Recording system	Rotary 2-head helical scan Luminance: FM recording Color signal: converted subcarrier direct recording
Video signal system	CCIR standards, PAL color

Video

Inputs	VIDEO IN (BNC type) × 2 1.0 Vp-p±0.3 Vp-p, 75 ohms, unbalanced, sync negative DUB IN (7-pin) × 1
Outputs	VIDEO OUT (BNC type) × 1 1.0 Vp-p±0.2 Vp-p, 75 ohms, unbalanced, sync negative MONITOR TV (8-pin) × 1 DUB OUT (7-pin) × 1 MONITOR VIDEO (BNC type) × 1
Horizontal resolution	SP mode recording: 330 lines (both B/W and color)
S/N	SP mode Color: more than 46 dB Luminance (Y): more than 48 dB High-band format more than 46 dB (color)
Sync signal input	SYNC IN (BNC type) × 1 2.5 Vp-p (1 to 5 Vp-p), 75 ohms, unbalanced
RF (OFF TAPE)	(BNC type) × 1 0.5 (0.3 to 1.0 Vp-p), 75 ohms, unbalanced
Recording level control	Automatic and manual

Audio

Input	AUDIO LINE IN CH-1/L, CH-2/R (XLR 3-pin female) × 1 each +4 dB, 10 k ohms, balanced MICROPHONES CH-1/L, CH-2/R (phone jack) × 1 each -60 dB, 3 k ohms, unbalanced
Outputs	AUDIO LINE OUT CH-1/L, CH-2/R (XLR 3-pin male) × 1 each +4 dBm (at 600 ohm load), balanced MONITOR AUDIO (phono jack) × 1 -5 dB (at 47 k ohm load) MONITOR TV (8 pin) × 1 HEADPHONES (stereo phone jack) For 8-ohm headphones Level adjustable (from -26 to -46 dB)
S/N	With Dolby NR off 52 dB (KSP, KSP-S tapes) 50 dB (KCA, KCS tapes) (both channels 1 and 2 at 3% distortion)
Frequency response	50 to 15,000 Hz ±3 dB (both audio channels 1 and 2 with Dolby NR off)
Recording level control	Manual or limiter selectable

Time code

Input	TIME CODE IN (BNC type) × 1 0 dB ±6 dB, 10 k ohms, unbalanced (0 dB = 1.55 Vp-p)
Output	TIME CODE OUT (BNC type) × 1 0 dB ±3 dB, low impedance, unbalanced

Edit

Assemble	Video and audio channel 1 and audio channel 2 (simultaneously)
Insert	Video, audio channel 1 and/or audio channel 2 independently (selectable)
Preroll	Possible
Automatic editing	Possible with the RM-450CE Automatic Editing Control (optional) Accuracy: ±2 frames (This value does not apply if the F FWD or REW button is used during editing.)

Other functions

Memory backup of mark in operation	3 years from shipment
Pause	A still picture is obtained with long pause function
Search	Still, 1/30 to 8 times normal speed in both forward and reverse directions
Tracking control	Possible
Skew control	Possible
Sync system	Automatic switching between internal and external
Dropout compensator	Built-in

Tape transport

Tape speed	95.3 mm/sec.
Recording and playback time	Approx. 60 minutes (with KSP-60)
Fast forward and rewind time	Within 4 minutes (with KSP-60)
Wow and flutter	Less than ±0.23% p-p (DIN)
Tape compatibility	U-matic video cassette tapes
Usable tapes	KSP, KSP-S, KCA-BRS, KCS-BRS, KCA-XBR, KCS-XBR type

General

Power requirements	220 - 240 V AC, 50/60 Hz
Operating voltage	99 - 264 V AC
Power consumption	95 W (with the BKU-704 or BKU-705, BKU-703 and RM-440)
Operating position	Horizontal (up to 20 degrees)
Storage temperature	-20°C to +60°C (-4°F to 140°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	426 × 238 × 513 mm (w/h/d) (16 7/8 × 9 3/8 × 20 1/4 inches) including projecting parts and controls
Weight	Approx. 21.4 kg (47 lb 3 oz)
Supplied accessories	AC power cord (1) Operating instructions (1)

Design and specifications are subject to change without notice.

Recommended video equipment and accessories

Editing Control Unit RM-450CE, RM-440 (when the BKU-703 installed)
Color Video Monitor Sony CVM and PVM series
Color Video Camera Sony DXC series
Time code generator/reader BKU-705
Time code reader BKU-704
33P editing interface BKU-703
Remote Control Unit RM-500, RM-580 (when the BKU-703 installed)
Cleaning Cassette KCS-1CL
Remote Control Cable RCC-5F (33-pin), RCC-5G (9-pin)
Dubbing Cable VDC-5 (5 m)
Monitor Connecting Cable VMC-3P (3 m),
VMC-5P (5 m), VMC-10P (10 m)
Multi Remote Control Unit RM-555 (when the BKU-703 installed)
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Rack mount kit RMM-501

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SECTION 1

GENERAL DESCRIPTION

1-1. FEATURES

High-quality picture with a new recording/playback system

Recording and playback using the newly developed SP (Superior Performance) system and SP tapes specially designed for the SP system, provide clearer and sharper pictures than before.

Two recording modes and three playback modes

The VO-9850P is capable of recording in the SP and high-band modes, and of playing back in the SP, high-band and low-band modes.

Hi-Fi sound

Dolby NR C type noise reduction system permits high sound quality with reduced noise. The signal-to-noise ratio of 70 dB can be obtained (KSP or KSP-S tape) using the Dolby noise reduction system. CanonXLR 3-pin connectors usually used for professional audio equipment are employed for the audio inputs and outputs.

Search operation

A search dial with the shuttle and jog functions is furnished. Playback pictures can be viewed at various speeds from $1/30$ times to 8 times normal speed as well as in a still mode in shuttle mode. In jog mode, playback pictures from still to ± 1 time normal speed can be viewed.

As the playback can be performed in both forward and reverse directions, any desired scene can be easily found.

LED time counter

The time counter reads out the CTL signals recorded on a tape and the LEDs indicate the tape running time in hours, minutes, seconds and frames. These are useful to check the recording time of a material and the remaining time of a tape.

When the BKU-705 time code generator/reader (optional) or the BKU-704 time code reader (optional) is installed in the VO-9850P, the time code recorded on the tape is read and displayed.

Connection of a time base corrector

The best possible playback picture will be obtained by connecting a time base corrector.

Memory function using MARK IN button

A particular point on a tape can be memorized by pressing the MARK IN button and can be searched for easily afterward.

Electronic editing

All essential functions for electronic editing, rotary erase head, and capstan servo, framing servo, ϕ^2 servo loop circuit are incorporated in the VO-9850P, which assures a high-quality editing with noiseless and stable picture at the edit point.

When an RM-450CE automatic editing control unit is used, an automatic electronic editing of high-quality will be possible.

Remote control

The unit is equipped with a 9-pin remote control connector. When the equipment which has a 9-pin remote connector such as an RM-450CE editing control unit, is connected here, the VO-9850P can be remotely controlled with this unit.

When a BKU-703 33-pin editing interface (optional) is installed in the VO-9850P, it can be remotely controlled by the equipment with a 33-pin remote connector such as an RM-440.

Time code recording and playback

Sony prepares optional boards for time code operation such as a BKU-705 time code generator/reader, and BKU-704 time code reader. When the board is installed in the VO-9850P, recording and playback of time code will be possible.

Dial menu operation

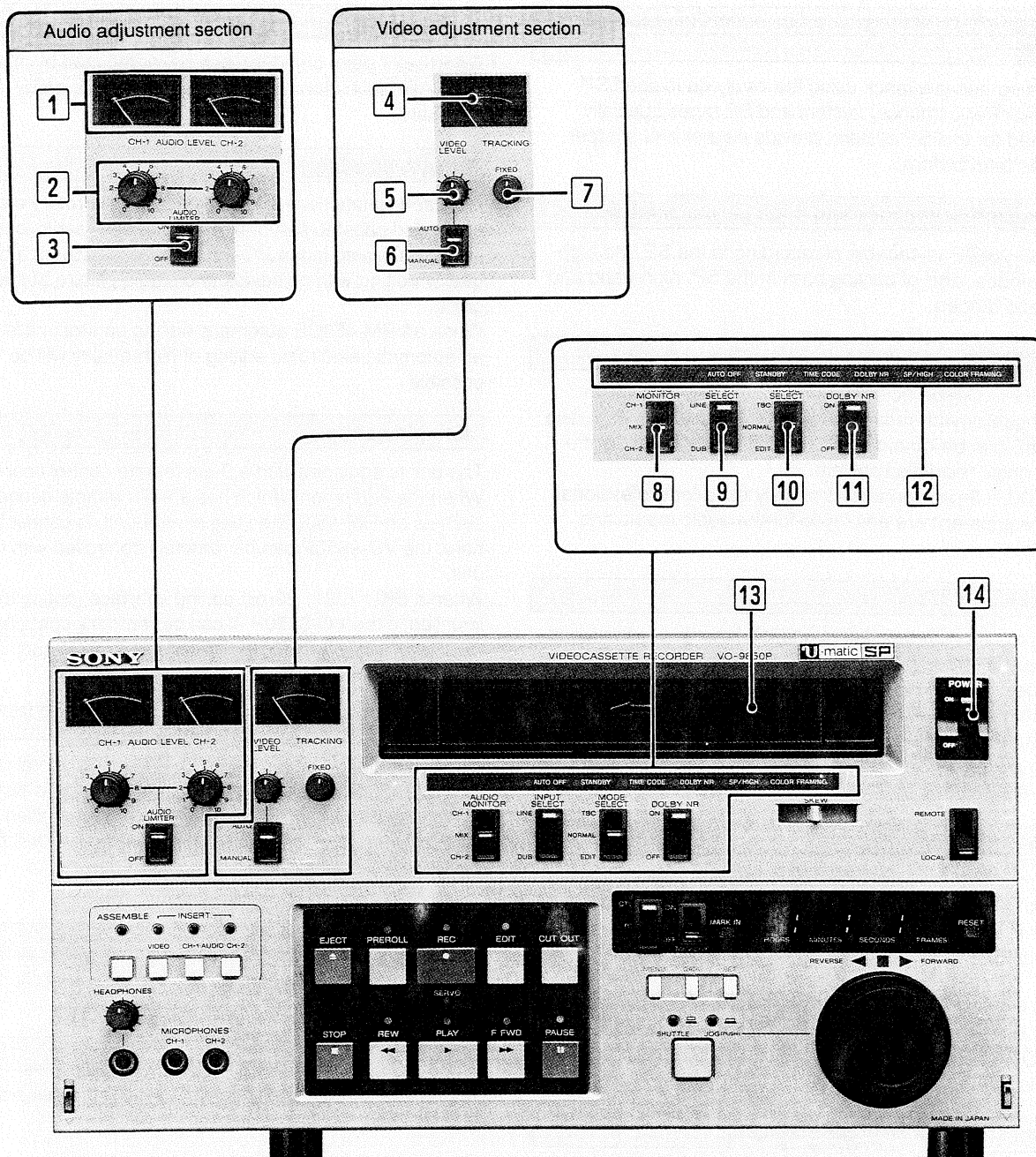
With the search dial, you can set time code, and change the setting value for editing.

Dubbing connectors

Connectors for editing or duplicating video signals are included.

1-2. LOCATION AND FUNCTION OF PARTS AND CONTROLS

FRONT PANEL



Audio adjustment section

- 1 Audio level meters**
Audio recording level is shown in recording and audio playback level in playback.
- 2 AUDIO LEVEL controls**

3 AUDIO LIMITER switch

ON	The audio recording limiter circuit is activated to minimize sudden surges of input signals and perform recording with low sound distortion. Microphone recordings shall be performed with this setting.
OFF	The limiter circuit is deactivated, enabling a manual recording level adjustment.

Video adjustment section

4 VIDEO LEVEL/TRACKING meter

This meter indicates the video recording level during recording and whether or not tracking is correct during playback.

5 VIDEO LEVEL control

With the AUTO/MANUAL selector **6** set to MANUAL, turn this control to adjust video recording level so that the meter pointer swings within the blue zone.

6 AUTO/MANUAL selector

AUTO	The video recording level will be adjusted automatically.
MANUAL	Set to this position to adjust the video recording level manually.

7 TRACKING control

Normally set this control at the center FIXED position. Should noise, snow or streaks appear in a playback picture recorded on another machine, turn this control so that the VIDEO LEVEL/TRACKING meter **4** pointer deflects to the right as far as possible.

- Do not move this control from the center FIXED position while recording.

8 AUDIO MONITOR switch

Select the sound to be monitored through headphones or a speaker of a video monitor.

9 INPUT SELECT switch

This switch selects the signal to be recorded.

LINE	To record the signal from the VIDEO IN connector.
DUB	To record the signal from the DUB IN connector.

10 MODE SELECT switch

This switch selects the sync mode according to the connected equipment or to the operation mode.

TBC	For playback with a time base corrector
NORMAL	For normal recording or playback
EDIT	For editing

- If the switch is set to TBC without connecting a time base corrector, the picture rolls in the search mode.
- For editing, be sure to set the MODE SELECT switch to EDIT. When the switch is set to the position other than EDIT, the editing does not begin.

11 DOLBY NR (noise reduction) switch

When using an SP series tape for recording, set this switch to:

ON	For recording the sound with the Dolby NR system
OFF	For recording the sound without the Dolby NR system

- This switch has no effect in playback mode. The circuit is automatically switched by detecting whether the tape being played has been recorded with the Dolby NR system or not.
- The Dolby NR system is effective only for recording on SP series cassettes. This switch is not operative when recording on KCA and KCS cassettes.
- If the sound recorded with the Dolby NR system is played back on a conventional U-matic VTR (which is not equipped with the Dolby NR system), treble will be boosted.

12 Indicator section

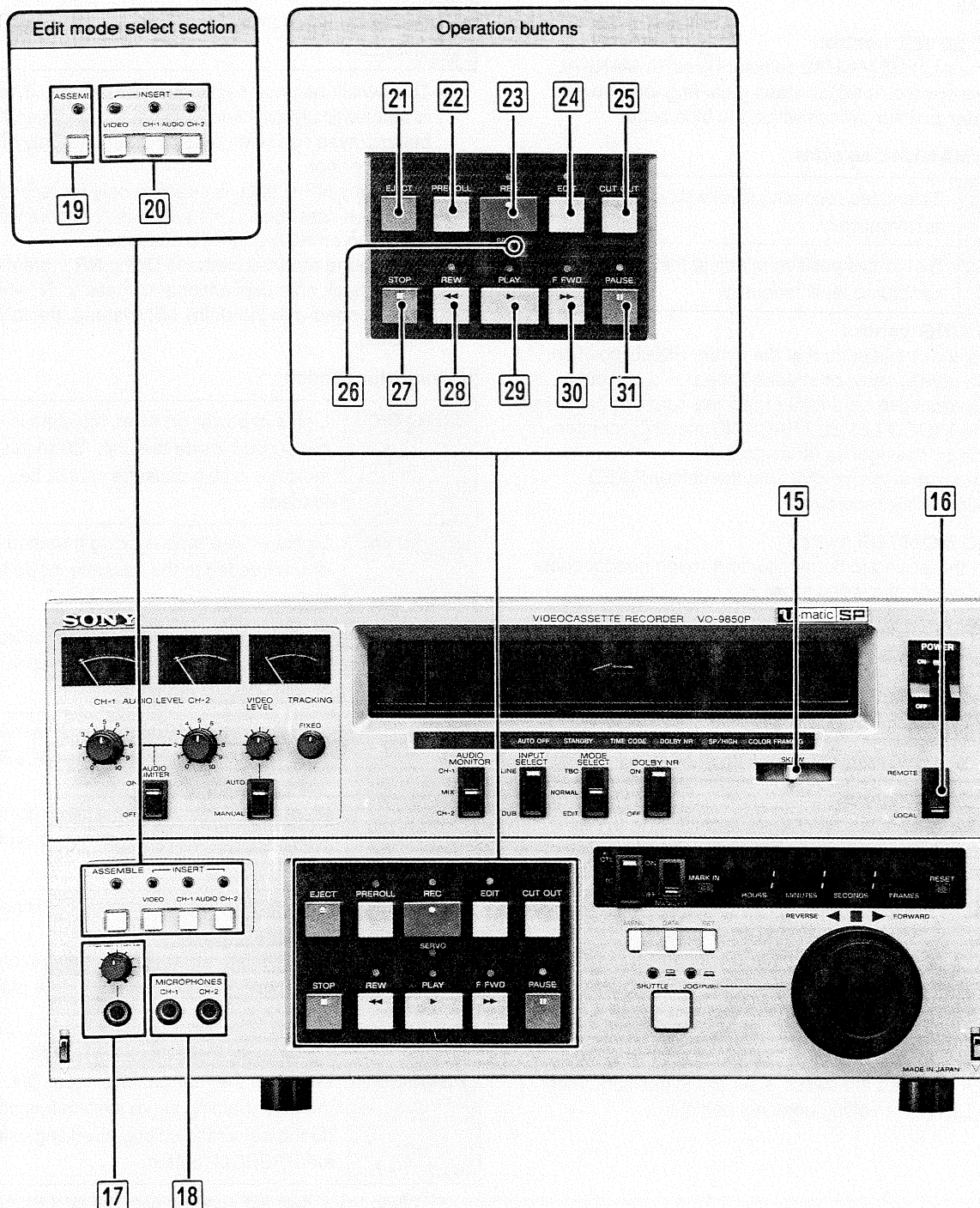
AUTO OFF	Lights at power-on when moisture is condensed inside the unit. While this indicator is lit, a cassette cannot be loaded.
STANDBY	Lights while a tape is being threaded from or unthreaded to the cassette inside the unit.
TIME CODE	Lights when time code is being recorded, or when the tape on which time codes are recorded is played back.
DOLBY NR*	In recording: Lights when an SP series cassette is inserted with the DOLBY NR switch set at ON. In playback: Lights when a tape recorded with the Dolby NR system is played back.
SP/HIGH**	In recording: Lights when an SP series cassette is loaded. In playback: Lights when a tape recorded in the SP or high-band mode is played back.
COLOR FRAMING	Lights when the COLOR FRAMING switch on the rear panel is set to ON, and the color framing servo system functions during automatic editing or editing using the PREROLL button.

* When the power is turned on with the DOLBY NR switch set at ON, the DOLBY NR lamp lights up even if no cassette has been inserted.

** When the power is turned on, the SP/HIGH lamp lights up even if no cassette has been inserted.

13 Cassette compartment

14 POWER switch



15 SKEW lever

Normally set this lever at the center position. When "hooking" distortion appears in the upper part of a playback picture, slide this lever to the right or left to obtain a normal picture.

- Do not move this lever while recording.

16 REMOTE/LOCAL selector

Use this selector to control this unit with the other equipment connected to the REMOTE -1 (9P) connector on the rear panel.

The functions are controlled as follows:

REMOTE	Set to this position when you want this unit to be controlled by the unit connected to the REMOTE-1 (9P) connector (9-pin). With this selector set to REMOTE, none of the operation buttons for tape travel, except for the STOP and EJECT buttons, will function.
LOCAL	Set to this position to operate this unit alone.

17 HEADPHONES connector (stereo phone jack), HEADPHONES level control

18 MICROPHONES CH-1 and CH-2 connectors (phone jacks)

Edit mode select section

19 ASSEMBLE button and indicator

Press for assemble editing. The indicator will light.

20 INSERT buttons and indicators

These buttons select the signal(s) to be inserted when editing. The indicator(s) corresponding to the button(s) pressed will light.

VIDEO	To insert the video signal
AUDIO CH-1	To insert the sound on audio channel 1
AUDIO CH-2	To insert the sound on audio channel 2

- Two or more buttons can be pressed simultaneously. To **cancel the channel** selected by one of these buttons, press the button again. The indicator will go out.

To **change the mode** from assemble to insert or vice versa, first cancel the previously selected mode by pressing the button again then press the appropriate buttons.

Operation buttons

21 EJECT button

Press to eject the video cassette.

22 PREROLL button and indicator

Press this button in pause mode and the tape rewinds for 5 seconds and stops in pause mode.

23 REC ● (record) button and indicator

For recording, press this button simultaneously with the PLAY ► button.

24 EDIT button and indicator

For editing, press this button simultaneously with the PLAY ► button. While this button is pressed, the E-E mode picture can be seen. (When INSERT mode is selected for editing, the signals selected with the INSERT buttons can be monitored in the E-E mode.)

25 CUT OUT button

Press this button when assemble or insert editing is finished. The edit mode is canceled and the tape will continue to run in playback mode. When this button is pressed in record mode, the record mode is canceled, and when this button is pressed in pause mode after the preroll, the edit mode is canceled.

26 SERVO lamp

With the PLAY ► button pressed, normally the drum and capstan servo-mechanisms will start working properly. This lamp lights when the servo-mechanisms are locked in a reference signal.

Note

The SERVO lamp blinks if the servo-mechanisms are not locked in during editing.

27 STOP ■ button

Press to stop the operation of the unit. The E-E mode picture can be seen on the monitor screen.

28 REW ◀◀ (rewind) button and indicator

Press to rewind the tape. The E-E mode picture can be seen on the monitor screen.

29 PLAY ► button and indicator

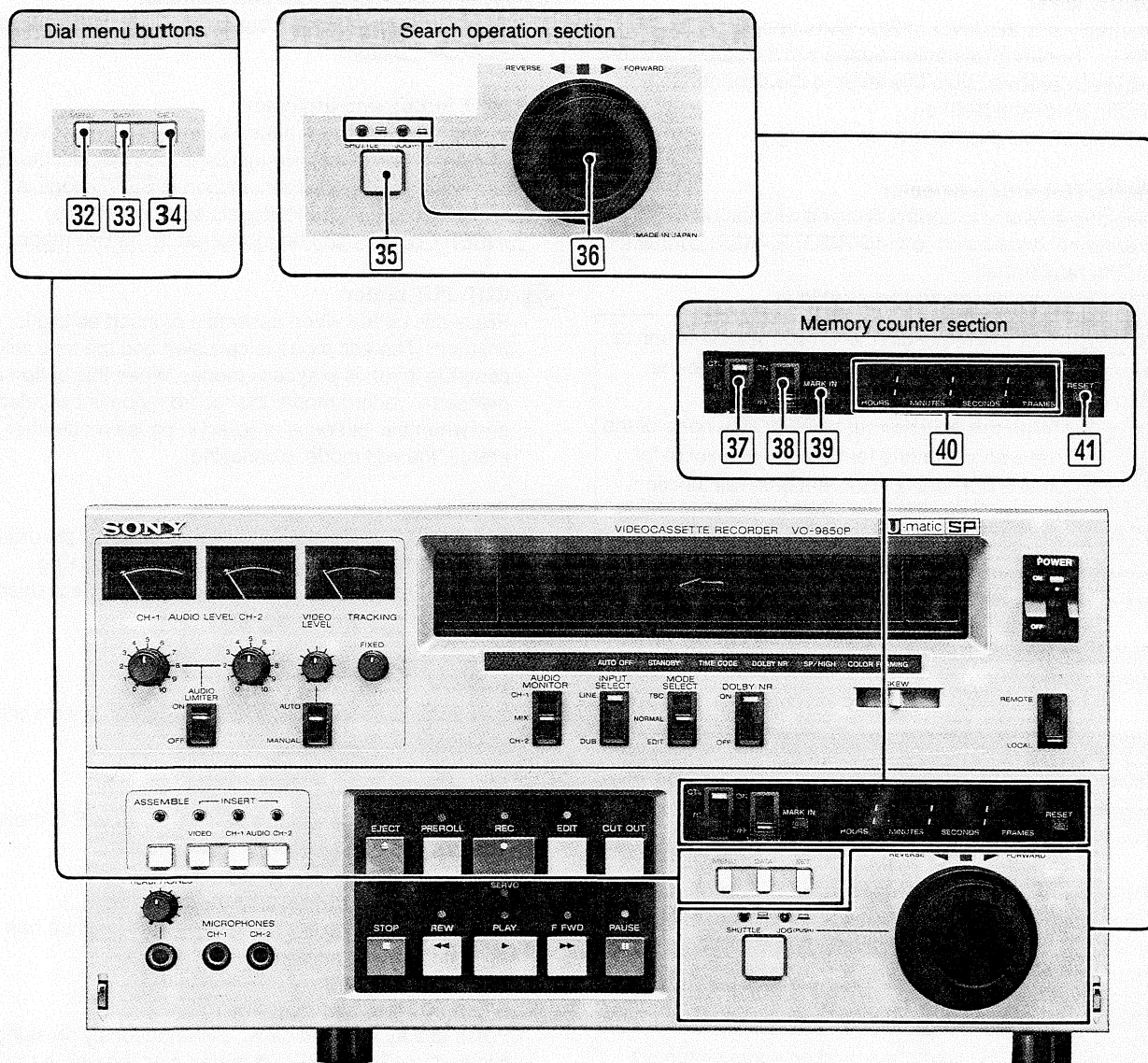
Press to play the tape back. Simultaneously pressing this button with the REC ● button sets the unit in the record mode: simultaneously pressing it with the EDIT button sets the unit in the edit mode.

30 F FWD ►► (fast forward) button and indicator

Press to advance the tape rapidly. The E-E mode picture can be seen on the monitor screen.

31 PAUSE || button and indicator

Press to stop the tape momentarily. To start the tape, press again. When this button is pressed during playback, a still picture will be obtained. If the PLAY ►, F FWD ►►, REW ◀◀ or search button is pressed during the pause mode, the pause mode will be released and the tape will run in the mode designated by the button pressed.



Dial menu buttons

The dial menu buttons **32**, **33** and **34** are used only when the CTL/TC/DIAL MENU selector **37** is set to DIAL MENU.

32 MENU button

While pressing this button, turn the search dial in jog mode to select the menu.

33 DATA button

While pressing this button, turn the search dial in jog mode to set the data.

34 SET button

Press this button to settle the data set by the DATA button.

Search operation section

35 Search button

Press to put the unit in the search mode, and the search operation with the search dial in jog or shuttle mode will be possible.

36 Search dial and SHUTTLE/JOG lamps

Functions as a search dial for quickly locating edit points or as a selector for the dial menu operation according to the setting of the CTL/TC/DIAL MENU selector **37**.

Setting	Function
CTL or TC	Search for a scene
DIAL MENU	Dial menu operation

The details of the function are as follows:

Search for edit points

Set the CTL/TC/DIAL MENU selector to CTL or TC, and press the search button [35]. The search dial can make the tape run in jog or shuttle mode. Push in to change from the shuttle mode to the jog mode and push it in again to change back. The corresponding lamp lights to show the current mode. Rotate the dial clockwise to run the tape forward (the ► FORWARD lamp lights), and counterclockwise to run the tape in reverse (the REVERSE ◀ lamp lights). When the tape stops, the ■ lamp lights.

SHUTTLE	Set the dial to one of 16 positions to run the tape at a speed from 1/30 to 8 times normal speed. A still picture is obtained at the center detent position.
JOG	The dial turns freely. The tape runs at a speed from 0 to 1 times normal speed while the dial is rotated. When the dial is stopped, a still picture is obtained.

Dial menu operation

Set the CTL/TC/DIAL MENU selector to DIAL MENU. Rotate the dial while pressing the MENU button [32] or the DATA button [33] to set characters or numbers on the display.

Memory counter section

[37] CTL/TC/DIAL MENU selector

Selects what is displayed in the time counter display [40] as follows.

CTL	Displays time period of tape travel in hours, minutes, seconds and frames by counting CTL pulses.
TC	Displays time code.
DIAL MENU	The unit goes into the dial menu operation mode and the dial menu will be displayed. In this mode, any other functions are deactivated.

Control panel positioning

The lower half of the control panel can be tilted upwards by 30°, 60° or 90° for convenience.

- 1 Push down the locks on the both sides simultaneously so that the lower half of the front panel comes to the front.
- 2 Tilt the panel up and lock it at the desired angle of 30°, 60° or 90°. Be sure to check that both sides are locked firmly.

Notes

- You can put the VO-9850P in the dial menu operation mode with the REMOTE/LOCAL selector [16] set to LOCAL, only when a cassette is not inserted or when the unit is in the stop mode.
- The time code data is displayed only when the BKU-705 time code generator/reader or the BKU-704 time code reader is installed in the VO-9850P.

[38] MEMORY switch

When this switch is set to ON, the tape will automatically stop at the point where the MARK IN button was pressed in the rewind or search mode. The point where the tape stops may shift a little. If the MARK IN button has not been pressed, the tape will stop at the point where the time counter indicates "0:00:00:00" (when CTL is selected).

- During editing or when the REMOTE 1 (9P) connector is used, be sure to set this switch to OFF.

[39] MARK IN button

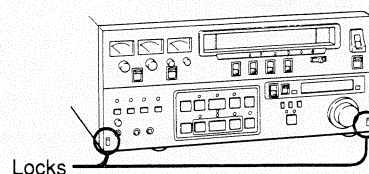
Press to memorize a particular point on the tape and the time indicator keeps indicating the memorized point while the button is pressed. The memory function can be activated at any position of the MEMORY switch.

[40] Time counter display

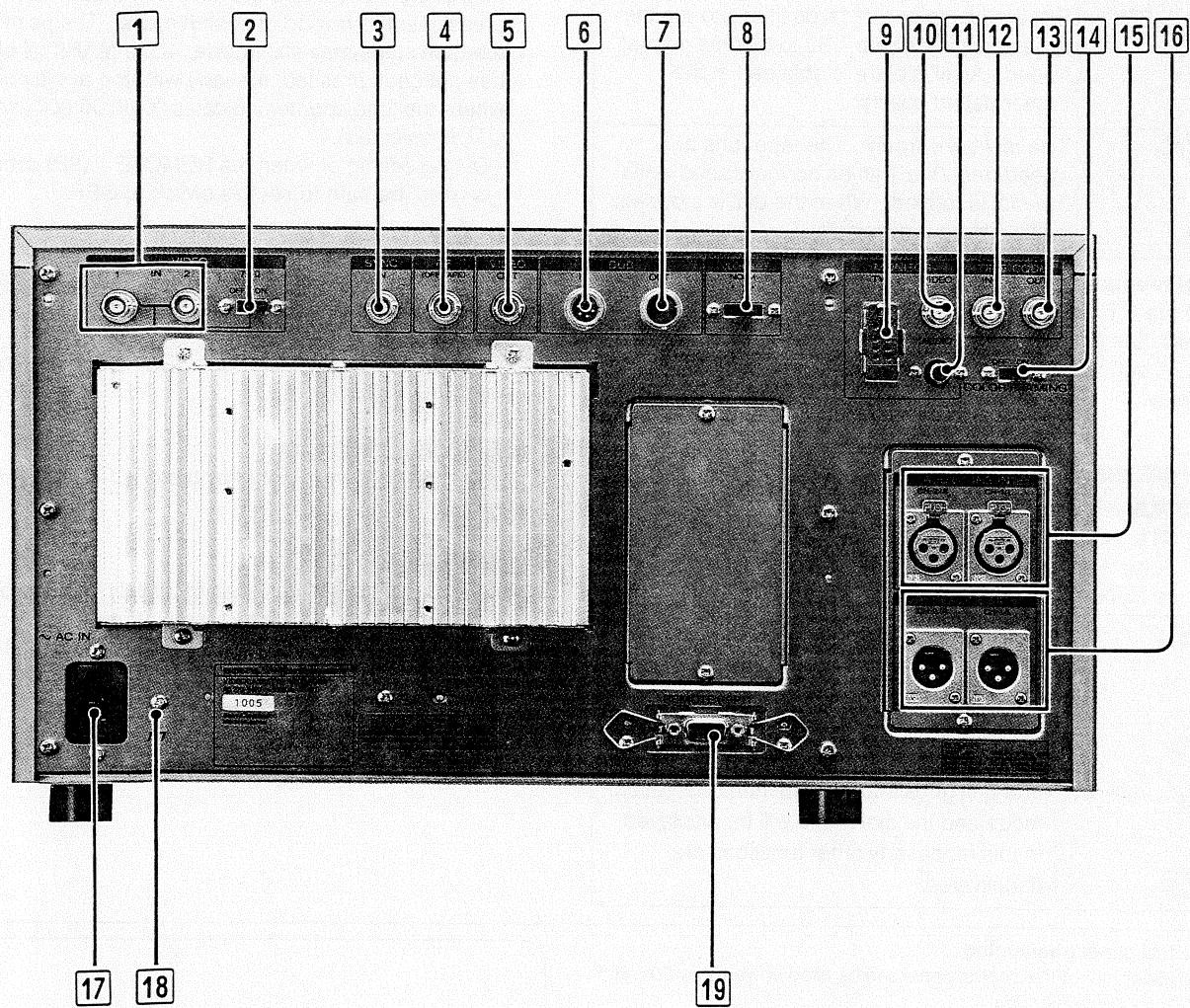
Displays the item selected by the CTL/TC/DIAL MENU selector [37].

[41] RESET button

When the CTL signal is used to display the time period of the tape travel on the time counter display [40], press to reset to 0:00:00:00. The point memorized by the MARK IN button will be canceled.



REAR PANEL



1 VIDEO IN (video input) connectors (BNC type)

Supply a composite video signal to one of these connectors.

For a bridging connection, use either one for input and the other for output. In this case, be sure to set the 75 ohm termination switch **2** to OFF and terminate the trunk line end instead.

2 75 ohm termination switch

Use to terminate the video signal supplied to the VIDEO IN connector **1**.

ON	When one VIDEO IN connector is used for the incoming signal and the other is left open.
OFF	For a bridging connection (One VIDEO IN connector is used for the incoming signal but the other is used to send the incoming signal to another VTR.)

3 SYNC IN (sync signal input) connector (BNC type)

Accepts an external sync signal to operate the unit in synchronization with an external device (time base corrector, etc.).

4 RF (OFF TAPE) output connector (BNC type)

Supplies an RF (Y-FM) signal to a time base corrector in playback.

5 VIDEO OUT connector (BNC type)

6 DUB IN (dubbing input) connector (7-pin)

Use to input the video signal to be dubbed from a U-matic VTR. Connect to the dub out connector of the U-matic VTR using the 7-pin dubbing cable (optional).

7 DUB OUT (dubbing output) connector (7-pin)

Use to supply the video signal to be dubbed to a U-matic VTR. Connect to the dub in connector of the U-matic VTR using the 7-pin dubbing cable (optional).

8 COLOR LOCK switch

As a rule, set to NORM (normal). If the playback picture has no color or if the hue is abnormal, set the switch to the position marked [.]

9 MONITOR TV connector (8-pin connector)

Accepts a video monitor having an 8-pin VTR connector. Both the MONITOR VIDEO, and MONITOR AUDIO connections can be replaced with a single cable connection here. In playback, the channel selected by the AUDIO MONITOR switch will be heard through the speaker on the video monitor.

- The data of the dial menu is superimposed on the video signal and output.

10 MONITOR VIDEO connector (BNC type)

This outputs the video signal for monitoring. Connect to the video input connector of a color monitor. Information superimposed on a picture in the dial menu operation mode will also be output.

11 MONITOR AUDIO output connector (phono jack)

Supplies an audio signal selected by the AUDIO MONITOR switch on the front panel.

12 TIME CODE IN connector (BNC type)

Accepts the time code supplied from an external time code generator or another VTR.

When the BKU-705 time code generator/reader (optional) is installed in the VO-9850P, it can be locked with the time code supplied to this connector.

When the BKU-705 is not installed, the time code supplied to this connector can be recorded.

13 TIME CODE OUT connector (BNC type)

During playback, the time code recorded on the tape is played back and output from here. When the time code is supplied to the TIME CODE IN connector, the supplied time code is output during recording.

When the BKU-705 time code generator/reader is installed, the time code generated by the BKU-705 is output during recording.

14 COLOR FRAMING switch

Normally, set the switch to ON, and the color framing system functions during editing. At the OFF position, the color framing system does not function.

15 AUDIO LINE IN CH-1/L and CH-2/R connectors (XLR 3-pin, female)

16 AUDIO LINE OUT CH-1/L and CH-2/R connectors (XLR 3-pin, male)

17 AC IN (power inlet)

Plug in the supplied AC power cord to supply power to the VO-9850P.

18 Ground terminal

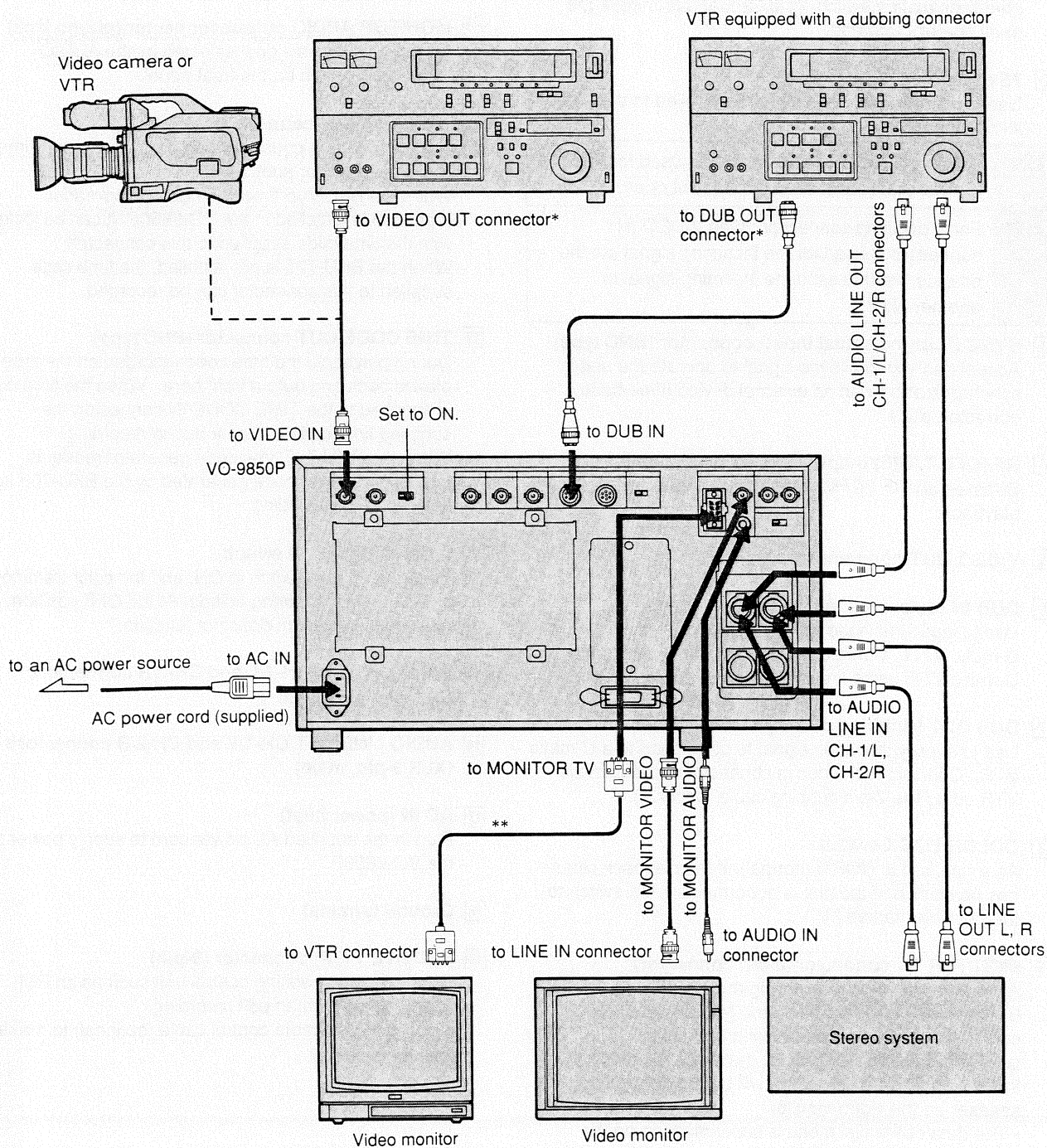
19 REMOTE 1 (9P) connector (9-pin)

Connect a Sony editing control unit such as an RM-450CE to perform an edit recording.

Use the 9-pin remote control cable (optional) to make the connection.

1-3. CONNECTIONS

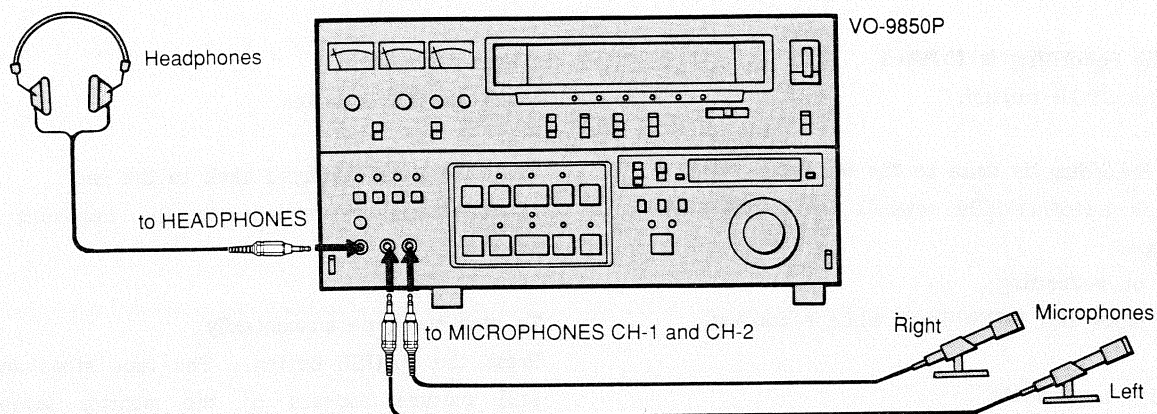
1-3-1. Connections for Recording



* When a VTR which is not equipped with the DUB connector, connect it to the VIDEO IN connector on the VO-9850P using a cable with BNC connectors.

** Use a VMC-3P, VMC-5P or VMC-10P monitor connecting cable.

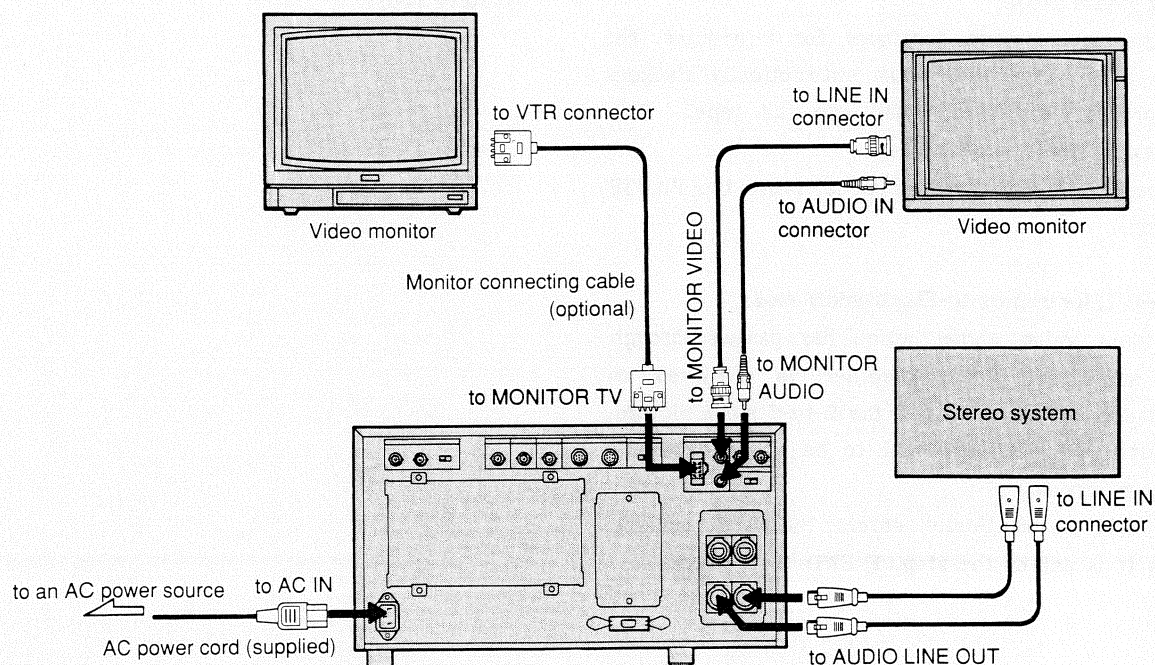
1-3-2. Connections for Headphones and Microphones



Note

When the microphones are connected, the signals connected to the AUDIO LINE IN connectors on the rear panel are automatically cut off, and cannot be recorded.

1-3-3. Connections for Playback



1-4. OPERATION

FOR RECORDING

When the recording is finished

Press the STOP button.

If the recording is done to the end of the tape

The tape automatically rewinds to the beginning, and stops.

. Note on recording

Do not move the SKEW lever while recording.

Regarding a cassette

Be sure to check that the red button is in place on the cassette before inserting it in the VTR. If the cassette without the button is inserted, the recording mode cannot be obtained.

To stop the tape momentarily

Press the PAUSE button.

To resume recording, press the PAUSE button again.

Long pause mode

If the pause mode continues for 8 minutes, the tape around the head drum automatically slackens to protect the video head and the tape. This is called "long pause mode".

To release the long pause mode, press the PAUSE button.

E-to-E (Electronics-to-Electronics) mode

An input video signal which has passed through the amplifier in the recorder is displayed on the monitor screen. This is the E-to-E mode picture, permitting the input signal to be checked on the monitor screen.

The unit automatically enters the E-to-E mode when it is set in the stop, F FWD or REW mode.

FOR PLAYBACK

To stop playback

Press the STOP button.

When the tape is played back to the end

It automatically rewinds to the beginning and then stops.

To stop the tape momentarily

Press the PAUSE button. The tape stops and a still picture appears on the monitor screen. The still picture is a clear one having no guard-band noise.

To resume playback, press the PAUSE button again or press the PLAY button.

. If the pause mode continues for 8 minutes, the recorder automatically enters the long pause mode, and the still picture will disappear.

Note on the MODE SELECT switch

If the MODE SELECT switch is set to TBC without connecting a time base corrector, the playback picture rolls.

SECTION 2 SERVICE INFORMATION

2-1. REMOVAL OF CABINET

• Top Panel

Remove the two fixing screws shown in the figure. Then remove the Top Panel from the unit in the direction of the arrow.

• Left Side Panel

Remove the four fixing screws. Then remove the Left Side Panel from the unit.

• Right Side Panel

Remove the four fixing screws. Then remove the Right Side Panel from the unit.

• Cassette-up Compartment

- (1) Remove the Top Panel.
- (2) Remove the two fixing screws and then remove the Cassette-up Compartment Stay.
- (3) Disconnect CN1 on the CC-36 board.
- (4) Lift the Cassette-up Compartment Block slowly.
- (5) When installing the Cassette-up Compartment, insert the projections of the Cassette-up Compartment Block into the holes of the chassis.
- (6) Connect CN1 on the CC-36 board.
- (7) Insert the projections of the Cassette-up Compartment Block into the holes of the Cassette-up Compartment Stay (as shown in the figure) and then fix the screws.

• Front Panel

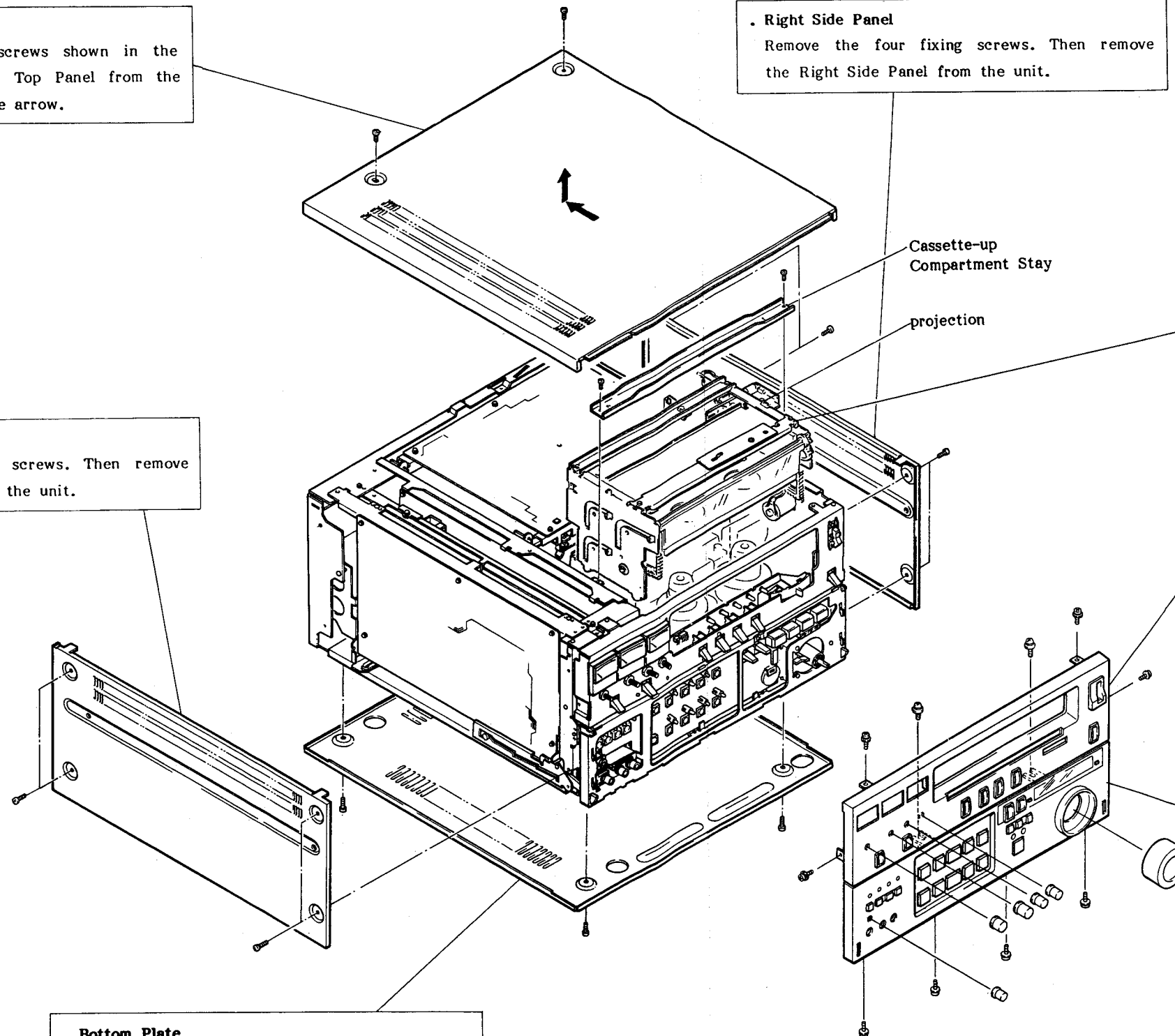
- (1) Remove the Top Panel, the Left and Right Side Panels, and the Cassette-up Compartment Block.
- (2) Remove the four fixing screws (two screws on the top, and a screw on each side).
- (3) Remove the two fixing screws of the lower portion of the Front Panel from the inside of the unit. Then remove the Front Panel from the unit.

• Key Panel

- (1) Remove the dial cover, and remove a knob from the unit.
- (2) Push down the right and left knobs on the front of the Key Panel and open the Panel at a 90 degree angle.
- (3) Remove the four fixing screws. Then remove the Key Panel from the unit.

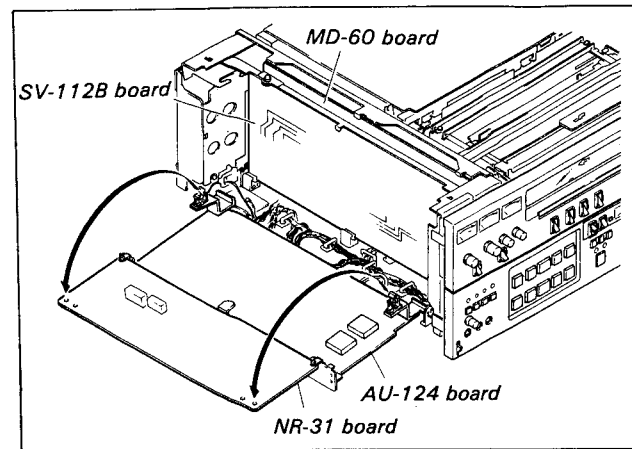
• Bottom Plate

Remove the four fixing screws. Then remove the Bottom Plate from the unit.



2-2. HOW TO SERVICE THE PRINTED CIRCUIT BOARD

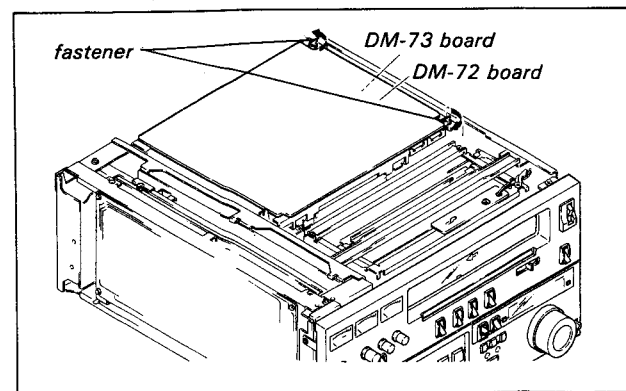
2-2-1. AU-124, NR-31, SV-112B and MD-60 Boards
Open the AU-124 and NR-31 boards to repair as shown in the figure.



2-2-2. DM-72 and DM-73 Boards

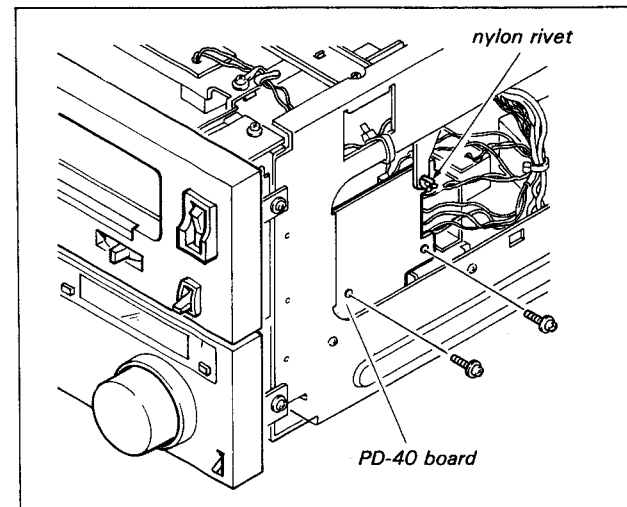
Turning the fastener to the direction of the arrow, the DM-72 board can be opened. Then, the component side of the DM-72 board can be repaired.

After opening the DM-72 board, the DM-73 board can be opened.



2-2-3. PD-40 Board

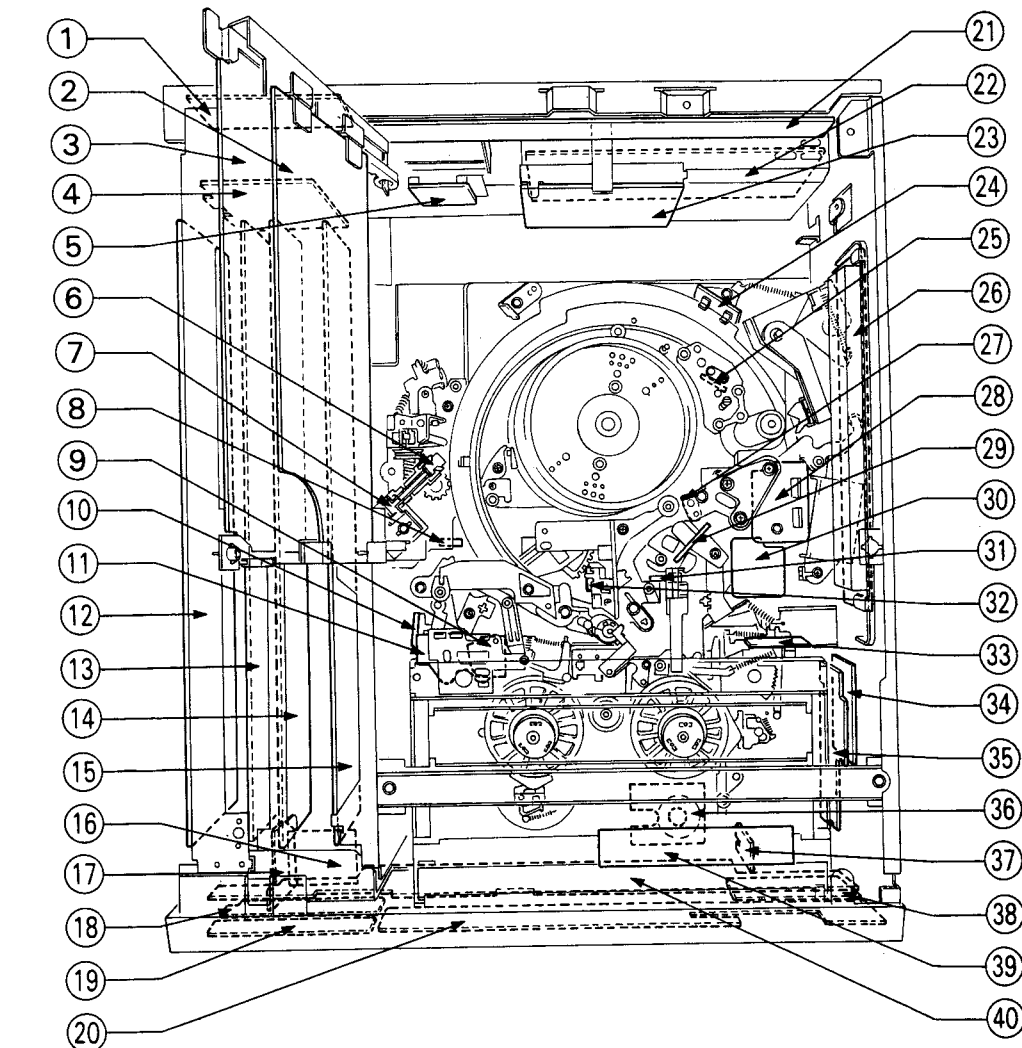
Remove the nylon rivet from the inside of the unit and remove two screws, and then remove the PD-40 board.



2-3. MAIN PARTS LOCATION

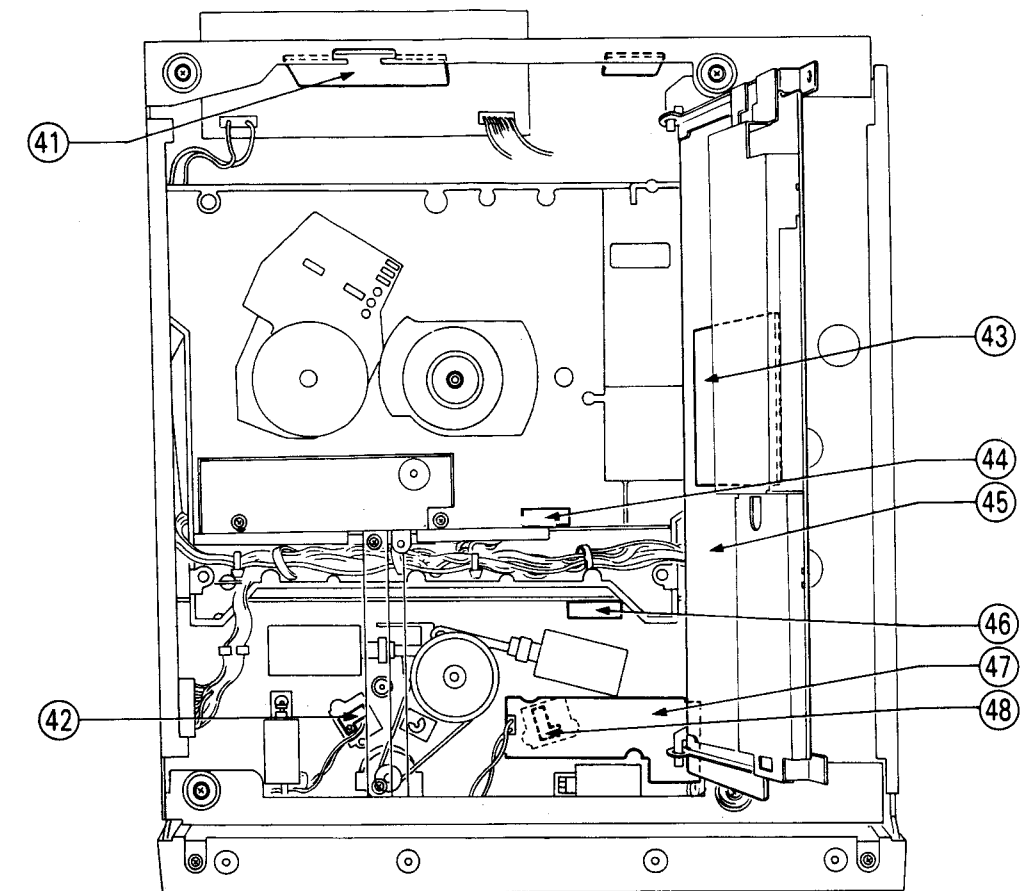
2-3-1. Location of the Printed Circuit Board

[TOP VIEW]



1 CP-136 Board	14 SV-112B Board	27 HN-84 Board
2 DM-73 Board	15 MD-60 Board	28 DUS-147 Board
3 DM-72 Board	16 MC-28 Board	29 EC-32 Board
4 AA-16 Board	17 HP-42 Board	30 HN-130 Board
5 RM-66 Board	18 VR-80 Board	31 PH-5 Board
6 PH-5 Board	19 MT-53 Board	32 PH-5 Board
7 PH-5 Board	20 SW-315B Board	33 CC-37 Board
8 LM-13 Board	21 DUS-271 Board	34 PD-40 Board
9 SE-46 Board	22 Switching Regulator (UR-02)	35 CC-36 Board
10 PTC-34 Board	23 DC-31P Board	36 RM-39 Board
11 PTC-30 Board	24 PTC-33 Board	37 PTC-32 Board
12 AU-124 Board	25 DUS-92 Board	38 DP-62 Board
13 NR-31 Board	26 RP-40B Board	39 LP-41 Board
		40 KY-159 Board

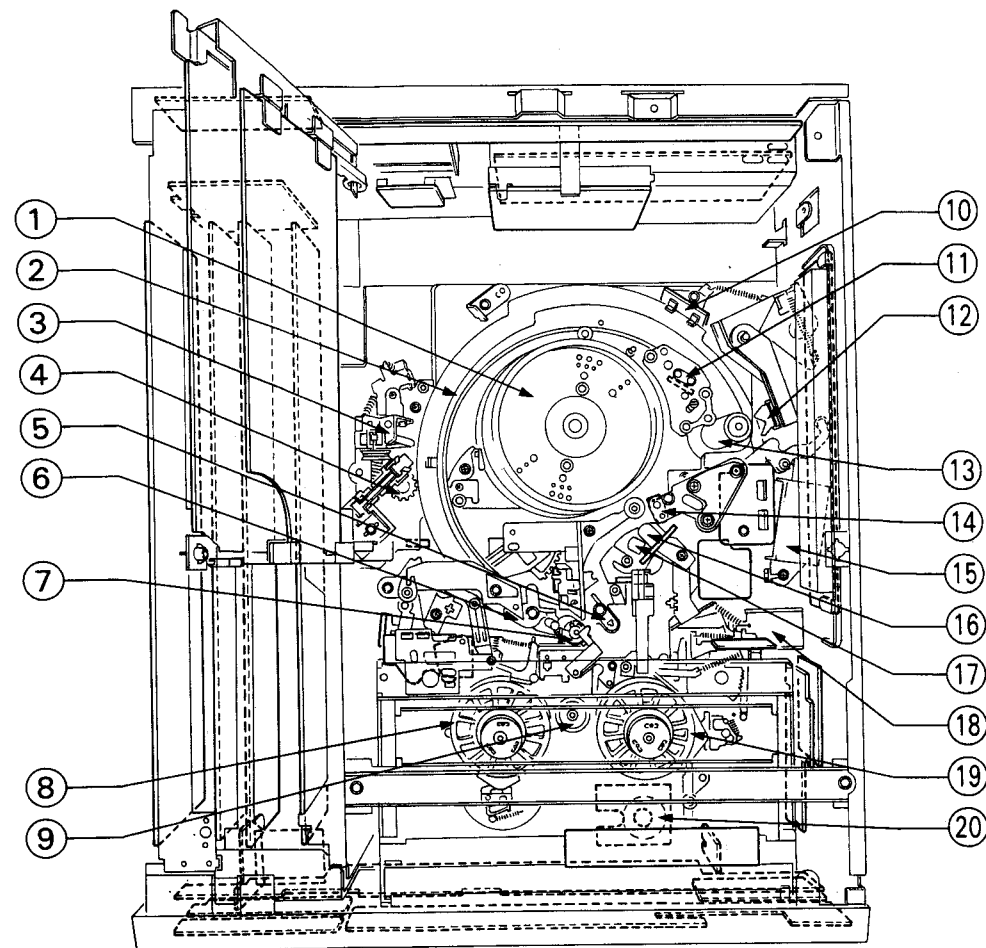
[BOTTOM VIEW]



41 AC-98 Board
42 PTC-35 Board
43 BC-16A Board
44 PT-9 Board
45 SY-141B Board
46 TG-22 Board
47 PD-41 Board
48 PTC-35 Board

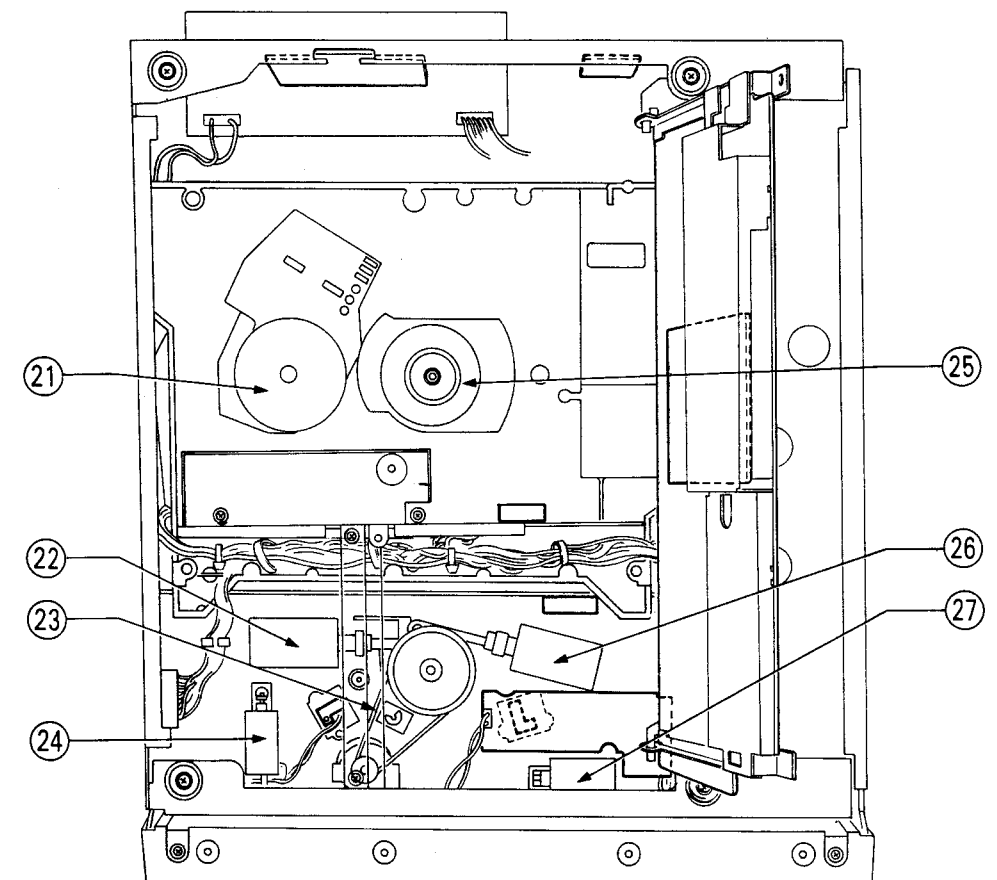
2-3-2. Location of the Mechanical Main Parts/ Components

[TOP VIEW]



- | | |
|----------------------|----------------------|
| 1 Head Drum | 11 Audio/CTL Head |
| 2 Threading Ring | 12 Pinch Lever |
| 3 T Correction Guide | 13 Capstan Shaft |
| 4 Gear Box | 14 Time Code Head |
| 5 S Drawer Arm | 15 Pinch Solenoid |
| 6 T Drawer Arm | 16 FR CTL Head |
| 7 Pinch Roller | 17 Full Erase Head |
| 8 Take-up Reel Table | 18 Search Solenoid |
| 9 Idler Pulley | 19 Supply Reel Table |
| 10 FR Detector | 20 Reel Motor |

[BOTTOM VIEW]



- | |
|---------------------------|
| 21 Capstan Motor |
| 22 Supply Idler Solenoid |
| 23 Belf for FF/REW Idler |
| 24 Supply Brake Solenoid |
| 25 Drum Motor |
| 26 Take-up Idler Solenoid |
| 27 Take-up Brake Solenoid |

2-4. PRINTED CIRCUIT BOARD

Circuit information is provided below.

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	CP-136	Monitor Out
	DM-72	Y Demodulator, SP Detector, Character Mixer
	DM-73	C PB Processor
	DUS-271	Connector
	MD-60	Y/C Separator, Y Modulator, C REC Processor, Meter Driver
	RP-40B	REC/PB Amplifier, Rotary Erase Driver
	VR-80	Level AUTO/MAN
AUDIO	AA-16	Connector
	AU-124	REC/PB Amplifier, Erase/Bias Oscillator
	CP-136	Monitor Out
	DUS-92	Audio R/P Head, Audio Erase Head
	DUS-147	Junction Board for Audio Head
	HN-130	Erase Head
	HP-42	Headphones
	MC-28	MIC IN
	NR-31	Dolby NR, NR Pilot REC/Detector,
	SW-315B	Select Switch
	VR-80	REC Level, Limiter ON/OFF
SERVO	EC-32	FR CTL Head
	PT-9	Reel Motor Driver
	SV-112B	Drum/Capstan Servo
	SY-141B	Reel Servo
	VR-80	Tracking Control
TIME CODE	CP-136	EXT. IN/OUT
	HN-84	Time Code Head
	HN-130	Junction Board for Time Code Head
	NR-31	REC/PB Amplifier
POWER	AC-98	Line Filter
	DC-31P	DC Supply
	UR-02	Switching Regulator

SYSTEM	BOARD	CIRCUIT FUNCTION
SYSTEM CONTROL	KY-159	Function Key Board
	DP-62	Display
	BC-16A	Video/Audio Timing Control
	CC-36	Junction Board for CC-37 and LP-41
	CC-37	Cassette In Detector
	LM-13	Threading Motor
	PD-40	Plunger Solenoids
	PD-41	Plunger Solenoids
	PH-5	Tape Beginning/End Detector
	PTC-30	SP/Miss REC Detector
	PTC-32	Search Dial
	PTC-33	Unthread-end Detector
	PTC-34	FR-STOP Detector
	PTC-35	S/T Reel Rotation Detector
	RM-66	Remote Connector
	SE-46	Tension Regulator Detector
	SY-141B	System Control
	TG-22	Tension Regulator LED
OTHERS	CP-136	Framing Switch
	LP-41	Cassette Compartment Lamp
	MT-53	Meter Lamp
	RM-39	Reel Motor

2-5. CONNECTORS

When external cables are connected to the various connectors on the connector panel during maintenance, the hardware listed below (or equivalents) must be used.

Panel Indication	Connector
MONITOR TV	1-506-161-00 CONNECTOR, 8P, MALE
SYNC IN RF (OFF TAPE) VIDEO IN VIDEO OUT MONITOR VIDEO TIME CODE IN TIME CODE OUT	1-560-069-11 PLUG, BNC, MALE
MONITOR AUDIO	1-506-311-00 PLUG, PIN
AUDIO LINE IN CH-1, CH-2	1-508-084-00 CONNECTOR, XLR, 3P, FEMALE
AUDIO LINE OUT CH-1, CH-2	1-508-083-00 CONNECTOR, XLR, 3P, MALE
REMOTE 1 (9P)	1-560-651-00 PLUG, 9P, MALE and 1-561-749-00 JUNCTION, SHELL, 9P
DUB IN	1-561-055-00 PLUG, 7P, FEMALE
DUB OUT	1-508-948-00 PLUG, 7P, MALE

2-6. INPUT/OUTPUT SIGNAL OF THE CONNECTOR

VIDEO IN 1, 2	: 1.0 ± 0.3 Vp-p, 75 ohms, unbalanced, sync negative
VIDEO OUT	: 1.0 ± 0.2 Vp-p, 75 ohms, unbalanced, sync negative
SYNC IN	: 2.5 Vp-p (1 to 5 Vp-p), 75 ohms, unbalanced
RF (OFF TAPE)	: 0.5 Vp-p (0.3 to 1.0 Vp-p), 75 ohms, unbalanced
AUDIO IN CH-1/L, CH-2/R	: +4 dB, 10 kohms, balanced
MICROPHONES CH-1/L, CH-2/R	: -60 dB, 3 kohms, unbalanced
AUDIO OUT CH-1/L, CH-2/R	: +4 dBm (at 600-ohm load), balanced
MONITOR AUDIO	: -5 dB (at 47-kohm load)
HEADPHONES	: -26 to -46 dB (adjustable)
TIME CODE IN	: 0 ± 6 dB, 10 kohms, unbalanced (0 dB = 1.55 Vp-p)
TIME CODE OUT	: 0 ± 3 dB, low impedance, unbalanced

2-7. SPARE PARTS

- (1) The Δ -marked components are critical to safety.
Replace only with the same components as specified.
- (2) Replacement parts supplied from the Sony Parts Center will sometimes have a different shape and outside view from the parts which are used in the unit. This is due to "accommodating improved parts and/or engineering changes" or "standardization of genuine parts".
 - . This manual's exploded views and electrical spare parts lists indicate the part numbers of "the present standardized genuine parts".
 - . Regarding engineering part changes by our engineering department, refer to Sony service bulletins and service manual supplements.
- (3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts lists are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

2-8. SELECT SWITCH SETTING

Along with the select switches on the control panel and the connector panel, the switch listed below is on the DM-73 board. This switch must be set according to operating conditions.

. DM-73 Board

S701: Low Band B/W Recorded Tape Playback Switch

When the tape that is recorded by the low band VTR (such as VO-5850P, VO-5600P etc.) is played back, this switch is set to OFF position.

When the unit is shipped, this switch is set to the ON position.

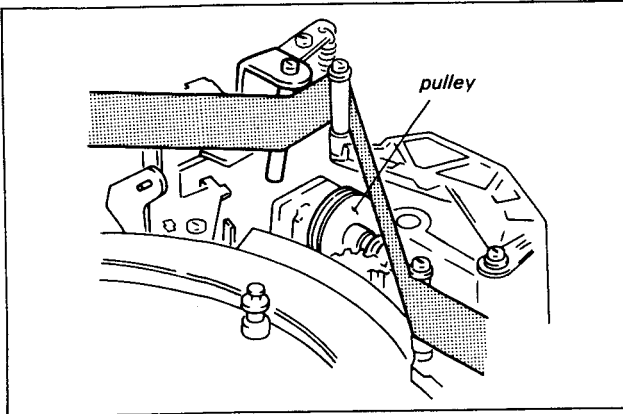
2-9. HOW TO OPERATE THE MACHINE WITHOUT INSTALLING A CASSETTE TAPE

- (1) Remove the Cassette-up Compartment. (Refer to Section 2-1.)
(The Tape Beginning Sensor and Tape End Sensor are disabled according to disconnect the connector of Cassette-up Compartment.)
- (2) Turn the power ON. (The machine enters the FR-STOP mode automatically.)
- (3) The machine can be placed into the desired mode by pressing the function button corresponding to the mode.

2-10. CASSETTE REMOVAL PROCEDURE WHEN NORMAL EJECTION IS NOT POSSIBLE

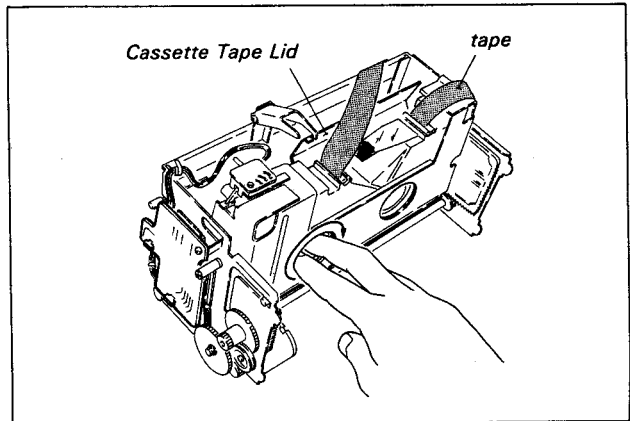
If the EJECT operation becomes impossible due to trouble or the Cassette-up Compartment does not rise when the EJECT operation takes place, the cassette tape can be removed from the set by following the procedures described below.

- (1) Turn the power OFF.
- (2) Remove the Top Panel. (Refer to Section 2-1.)
- (3) Turn the white pulley of the Gear Box by hand in a clockwise direction looking from the front panel side until the Threading Ring is in the FR-STOP position (until the S Drawer Arm is located at the front of CTL head). At this time, the Threading Ring moves in the unthreading direction. But the tape remains at the position of threading completion.

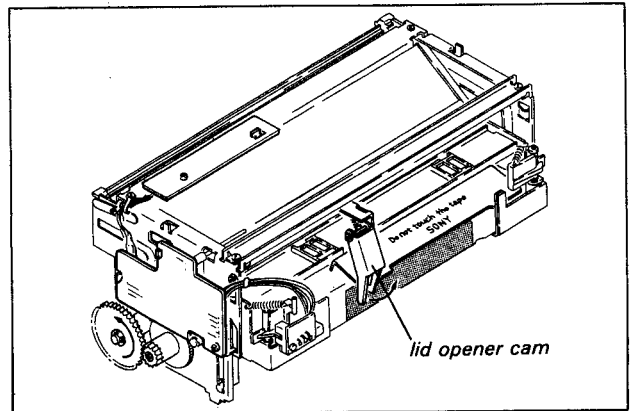


- (4) Disconnect the connector CN1 on the CC-36 board of the Cassette-up Compartment.
- (5) Remove the Cassette-up Compartment Stay. (Refer to Section 2-1.)
- (6) Slowly lift the Cassette-up Compartment with the cassette tape in it. Remove the tape remaining in the set carefully so that it is not damaged.

- (7) Hold the Cassette Tape Lid so that it does not close. Wind the tape into the cassette by turning the reel hub on the back of the cassette by hand.



- (8) Raise the cam for opening the lid and close the cassette tape lid.



- (9) Remove the tape from the Cassette-up Compartment.
- (10) Turn the gear on the right side of the Cassette-up Compartment by hand in a counterclockwise direction in order to place the Cassette-up Compartment into the up state.
- (11) Locate the cause of the trouble and remedy the problem.

2-11. DIAL MENU OPERATION

The system controls (Still Timer, Preroll Time, etc.) initially set at the factory can be arbitrarily modified using the SEARCH dial, MENU button, DATA button, and SET button.

The dial menu has the following functions:

- . BASIC FUNCTION
- . ENHANCED FUNCTION

2-11-1. Button and Dial Settings

Search dial: Selects the ITEM, Modifies the DATA, Moves the cursor.

MENU button: Selects the ITEM when used with a search dial.

DATA button: Selects the DATA when used with a search dial.

SET button : Writes the DATA into the memory.



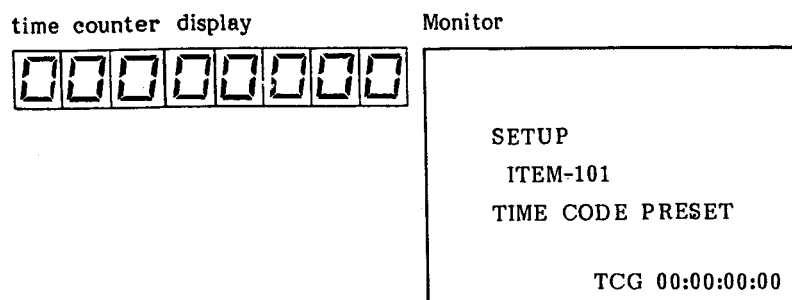
2-11-2. Operation

<Put the unit into DIAL MENU operation mode>

The DIAL MENU operation data appears on the Front Panel's time counter display and monitor television (the video signals should be connected to the VIDEO IN connector and the monitor television should be connected to the MONITOR connector on the Connector Panel).

- (1) Set the REMOTE/LOCAL switch on the Front Panel to LOCAL.
- (2) Put the unit into JOG mode (when the SHUTTLE lamp is on, press the SEARCH dial).
- (3) Press the STOP button and put into the STOP mode or PLAY PAUSE mode.

- (4) Set the CTL/TC/DIAL MENU switch on the Front Panel to DIAL MENU.
The unit is put into the DIAL MENU mode and the <□> lamp at the top of the SEARCH dial lights.



When the unit is put into the DIAL MENU mode after power on sequence, the following ITEM is selected automatically.

When the optional time code (BK-705) is installed into the unit:

ITEM-101

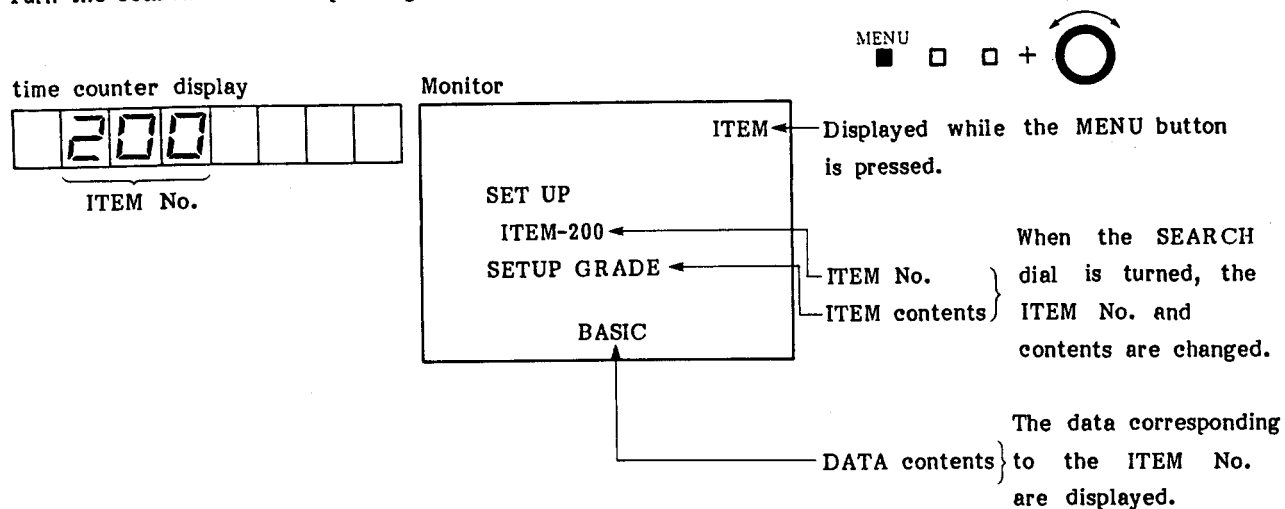
When the optional time code (BK-705) is not installed into the unit:

ITEM-105

(NOTE) The VTR cannot be operated normally in the DIAL MENU operation mode.

<Select the ITEM>

- (5) Turn the search dial while pressing the MENU button.

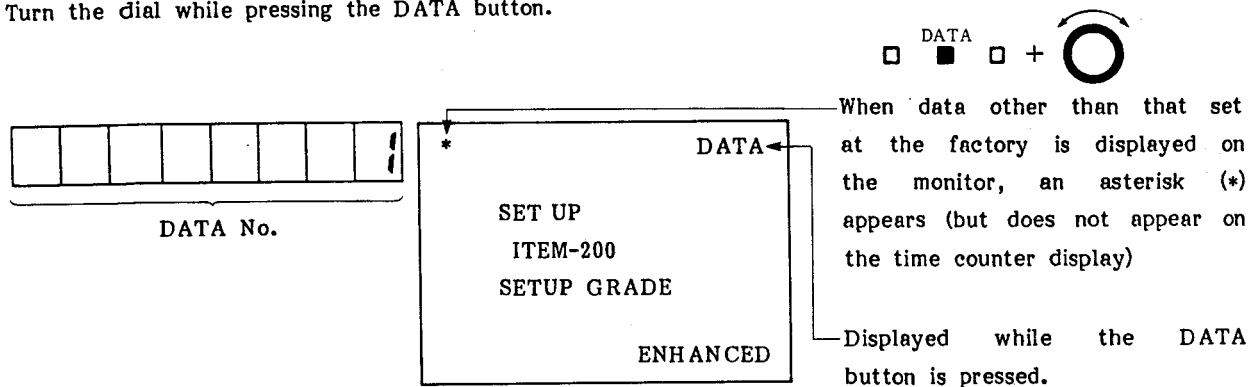


- (6) Stop the dial when the desired ITEM is displayed, and then release the MENU button.

When the DATA No. on the time counter display and DATA contents on the monitor blink, they can be modified as following method.

<Modify the data>

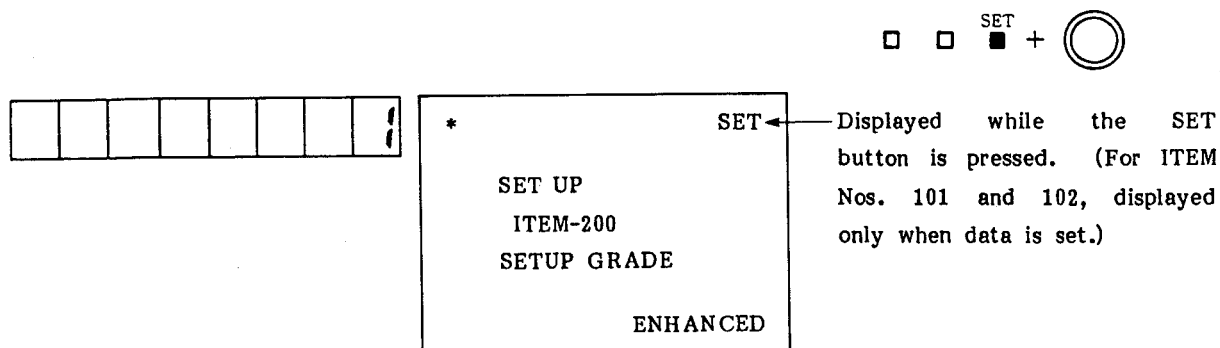
- (7) Turn the dial while pressing the DATA button.



- (8) Stop the dial when the desired data is displayed, and release the DATA button.

<Set the data>

- (9) Press the SET button.



- . The displayed data is written into the memory, the data remains unchanged even if the POWER switch is turned OFF.
- . If the updated data is set, the <□> lamp at the top of the SEARCH dial flashes for one second when the SET button is pressed. The DATA No. and DATA content blinking stops at that time.

2-11-3. ITEM/DATA

(1) BASIC FUNCTION

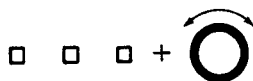
(NOTE) ITEM Nos. 101 and 102 are displayed only when an optional time code, BKU-705 is installed into the VTR.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
101	TIME CODE PRESET	00000000 23595924	TCG 00:00 :00:00 TCG 23:59 :59:24	Time code setting. 00H00M00S00Fr through 23H59M59S24Fr can be set. Factory setting: DATA No.00000000 (TCG00:00:00:00)

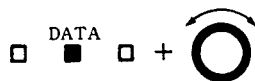
Setting the data in the ITEM No. 101

(NOTE).Set the INT/EXT switch on the BKU-705 to INT.
.Set the SLAVE LOCK/PRESET switch on the BKU-705 to PRESET.
.Select whether the LTC time code should be used in the DF mode or NDF mode in the ITEM No. 202.

1. Turn the SEARCH dial and blink the desired digit.



2. Turn the dial while pressing the DATA button to set the desired figures.



3. Repeat the steps 1, 2 to set the desired figures.
4. When completed, press the SET button.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
102	U-BIT PRESET	00000000 FFFFFFFF	00 00 00 00 FF FF FF FF	User bit setting. Eight-digit data (hexadecimal) can be recorded into a tape. Data setting is the same as in ITEM No.101. Factory setting: DATA No.00000000 (00 00 00 00)
105	CHARACTER POSITION	0 15	OFF 1 15	Set the character position that is super-imposed on the monitor (only the vertical direction). When set to OFF, the character is not displayed. The displayed data of TC(U-BIT)/CTL can be selected with CTL/TC/DIAL MENU switch on the Front Panel. Factory setting: DATA No.0 (OFF)
106	CHARACTER SIZE	0 1	SMALL LARGE	Set the character size that is displayed on the monitor. Factory setting: DATD No.0 (SMALL)
200	SETUP GRADE	0 1	BASIC ENHANCED	DATA No.0 BASIC:Enable to select ITEM from 101 to 200 in the DIAL MENU operation. DATA No.1 ENHANCED: Enable to select ITEM from 201 to 225 in the DIAL MENU operation. Factory setting: DATA No.0 (BASIC)

(2) ENHANCED FUNCTION

The ENHANCED FUNCTION can be used by setting data to ENHANCED in the ITEM No. 200.

(NOTE) ITEM Nos. 202, 203, and 204 are displayed only when an optional time code, BKU-705 is installed into the VTR.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
201	ERROR STATUS	----- Error 02 Error 10 Error 20 Error 21 Error 22 Error 23 Error 90 Error 99	NONE TAPE SLACK HUMID SYSTEM ERROR no display SYSTEM ERROR 50 SYSTEM ERROR 60 no display no display	Self-diagnostic function. When trouble occurs during normal operation, message "ERROR CODE" appears on the Front Panel's time counter display in any mode. When the unit is put into the DIAL MENU mode to select this ITEM, error status corresponding to the error code are displayed on the monitor. (Refer to Section 2-11-4 for further details.) Note: The ITEM data content cannot be modified. Normal operation: ----- (NONE)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
203	PHASE CORRECTION	0 1	OFF ON	Selects whether or not the phase correction of the LTC signal generated using a time code generator should be controlled. DATA No.0 OFF: No phase correction is controlled. DATA No.1 ON: The phase correction is controlled. Factory setting: DATA No.1 (ON)
204	U-BIT BINARY GROUP FLAG	00 01 10 11	NOT SPECIFIED ISO CHARACTER UNASSIGNED1 UNASSIGNED2	Sets the user bit status of the time code signal generated using a time code generator. DATA No.00 NOT SPECIFIED: Character setting is not specified. DATA No.01 ISO CHARACTER: 8-bit character setting based on ISO646 and ISO2022. DATA No.10 UNASSIGNED1: Undefined DATA No.11 UNASSIGNED2: Undefined Factory setting: DATA No.00 (NOT SPECIFIED)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
205	HOUR METER (DRUM)	00000 15000	00000H 15000H	Displays the rotation time of the upper drum. Head replacement can be decided at that time. Up to from 0H to 15000H can be displayed. Note: The ITEM data content cannot be modified.
206	HOUR METER	00000 15000	00000H 15000H	Displays the total time of the power on sequence. Up to from 0H to 15000H can be displayed. Note: The ITEM data content cannot be modified.
207	STILL TIMER	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	0.5 SEC 1 SEC 5 SEC 10 SEC 20 SEC 30 SEC 40 SEC 50 SEC 1 MIN 2 MIN 3 MIN 4 MIN 5 MIN 6 MIN 7 MIN 8 MIN	The unit automatically enters the tape PROTECTION mode after it has been in the tape STOP (or STILL) mode for a fixed time to prevent the video head from clogging (to reduce the tape damage). This item sets the transition time of the tape STOP to tape PROTECTION mode. The time can be set from 0.5 seconds to 8 minutes. Factory setting: DATA No.15 (8 MIN)
209	SELECTION FOR SEARCH DIAL ENABLE	0 1	DIAL DIRECT VIA SEARCH BUTTON	When the SEARCH dial is turned or the SEARCH button is pressed, the unit enters the SEARCH mode. This item sets entering the SEARCH mode. DATA No.0 DIAL DIRECT: When the SEARCH dial is turned, the unit enters the SEARCH mode from any mode other than REC/EDIT. DATA No.1 VIA SEARCH BUTTON: When the SEARCH button is pressed, the unit enters the SEARCH mode. Factory setting: DATA No.1 (VIA SEARCH BUTTON)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
214	PREROLL TIME	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	0 SEC 1 SEC 2 SEC 3 SEC 4 SEC 5 SEC 6 SEC 7 SEC 8 SEC 9 SEC 10 SEC 11 SEC 12 SEC 13 SEC 14 SEC 15 SEC	Sets the preroll time during editing. The preroll time can be set from 0 to 15 seconds. Factory setting: DATA No.05 (5 SEC)
217	EDIT DELAY	0 1	2FRAME 6FRAME	Receive a recording command from the remote control unit during tape EDITING AND SELECTS THE NUMBER OF frames required until the VTR starts recording. DATA No.0 2 FRAME: Starts recording two frames after the command is received. The audio signal is double recorded on the tape. DATA No.1 6 FRAME: Starts recording six frames after the command is received. This compensates the edit timing of audio and video signals. This is the standard setting of this unit. (NOTE) Set according to the editing machine. Factory setting: DATA No.1 (6 FRAME)

2-11-4. System Error

When a trouble occurs during normal operation and an error code appears on the time counter display of the Front Panel, the error status corresponding to the error code is displayed on the monitor by selecting the Item No. 201 on the dial menu. The error cause can be learned at that time.

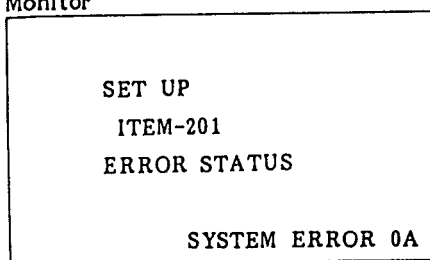
counter display	monitor display	Description
Error 02	TAPE SLACK	Excessive tape tension
Error 10	HUMID	The condensation
Error 20	SYSTEM ERROR	Mechanical error. Distinguished by the suberror code. (Refer to the following.)
Error 21	————	RAM error when the POWER is ON.
Error 22	SYSTEM ERROR 50	Communication error between optional BKU-703 and the unit.
Error 23	SYSTEM ERROR 60	Communication error between microcomputers M1 and M2. (Detected by M1 side.)
Error 90	————	Communication error between SY board and KY board.
Error 99	————	Lacking the 1/2 VD pulse to supply for the SY board.

(NOTE) Displayed on the time counter display about ERROR 21, 90 99.

When Error 20 "SYSTEM ERROR" appears, a suberror code is displayed at the lower right corner on the monitor.

The suberror code is described below.

Monitor



Suberror code

The suberror code is a two-digit hexadecimal number. Assume that the high-order digit is called Error 1 and the low-order digit called Error 0.

Error 0

0.	Normal operation
1.	Entering the FR STOP mode from threading exceeds the prescribed time (seven seconds).
2.	Entering the THREAD END mode from threading exceeds the prescribed time.

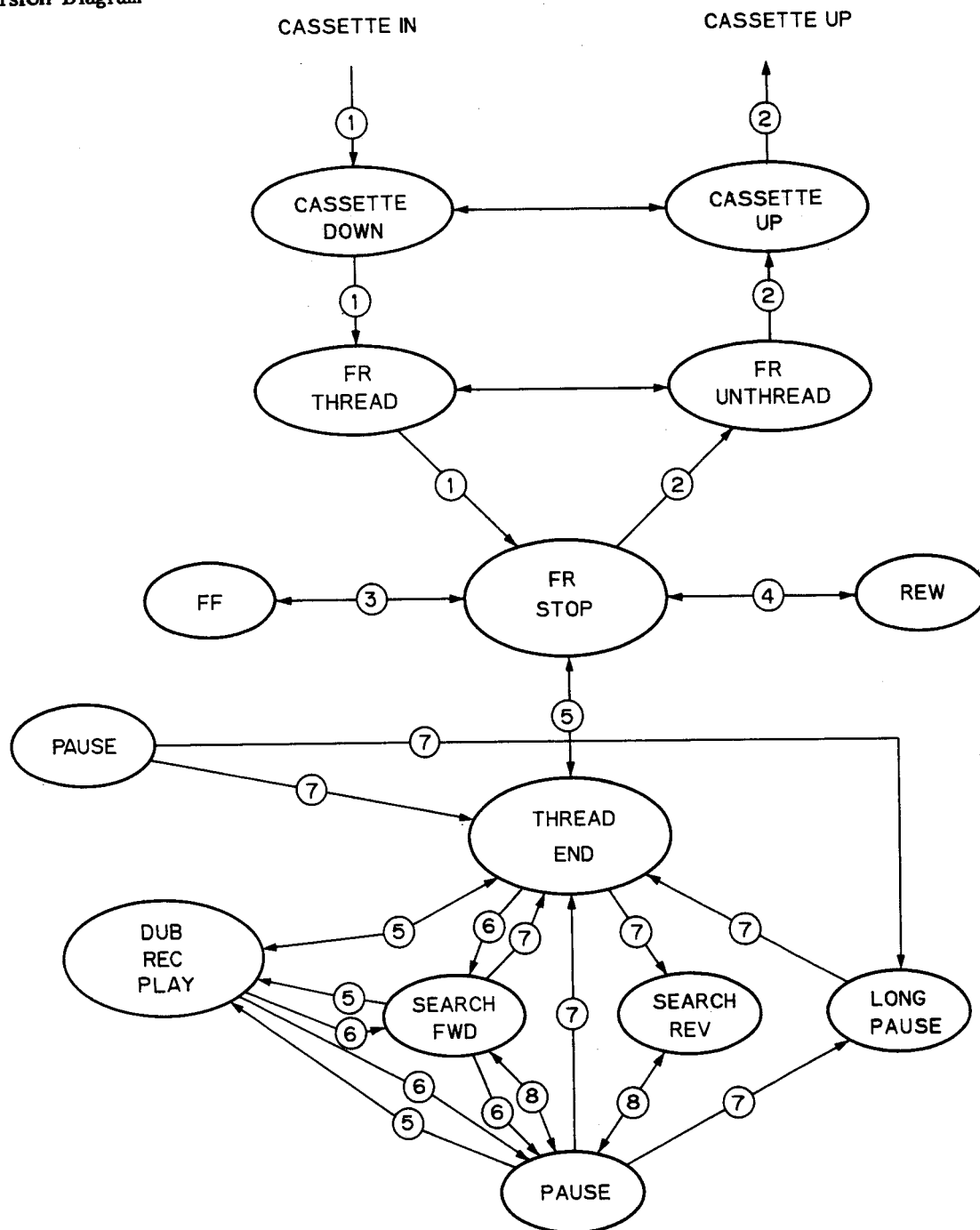
3.	Entering the FR-STOP mode from the THREAD END mode during unthreading exceeds the prescribed time.
4.	Returning from the FR-STOP mode to the CASSETTE DOWN position during unthreading exceeds the prescribed time.
5.	When a cassette is inserted and the EJECT button is pressed before the cassette-up compartment is lowered, raising the cassette exceeds the prescribed time.
6.	Detects the tape slack in FF/REW mode.
7.	Detects the tape slack during the unthreading operation from FR-STOP state.
8.	Detects the tape slack during the unthreading operation from the THREAD END to FR-STOP modes.
9.	Detects the tape slack in x5/x8 times normal forward mode.
A.	Detects the tape slack in x1 to x3 times normal forward mode.
B.	Detects the tape slack in x1/2 to x1 times normal forward mode.
C.	Detects the tape slack in x1/5 to x1/2 times normal forward mode.
D.	Detects the tape slack in x1/10 to x1/5 times normal forward mode.
E.	Detects the tape slack in x1/30 to x1/10 times normal forward mode.
F.	Does not stop the rotation of the capstan motor even if the STOP COMMAND send to it.

Error 1

0.	Normal operation
1.	Microcomputer M2 is not interrupted by the signal eight times the frequency of the 1/2 VD pulse.
2.	Communication error between microcomputers M2 and AV.
3.	Communication error between microcomputers M2 and SV.
4.	Communication error between microcomputers M1 and M2.
5.	Communication error between optional BKU-703 and the unit.
6.	Communication error between microcomputers M1 and M2. (Detected by M1 side.)

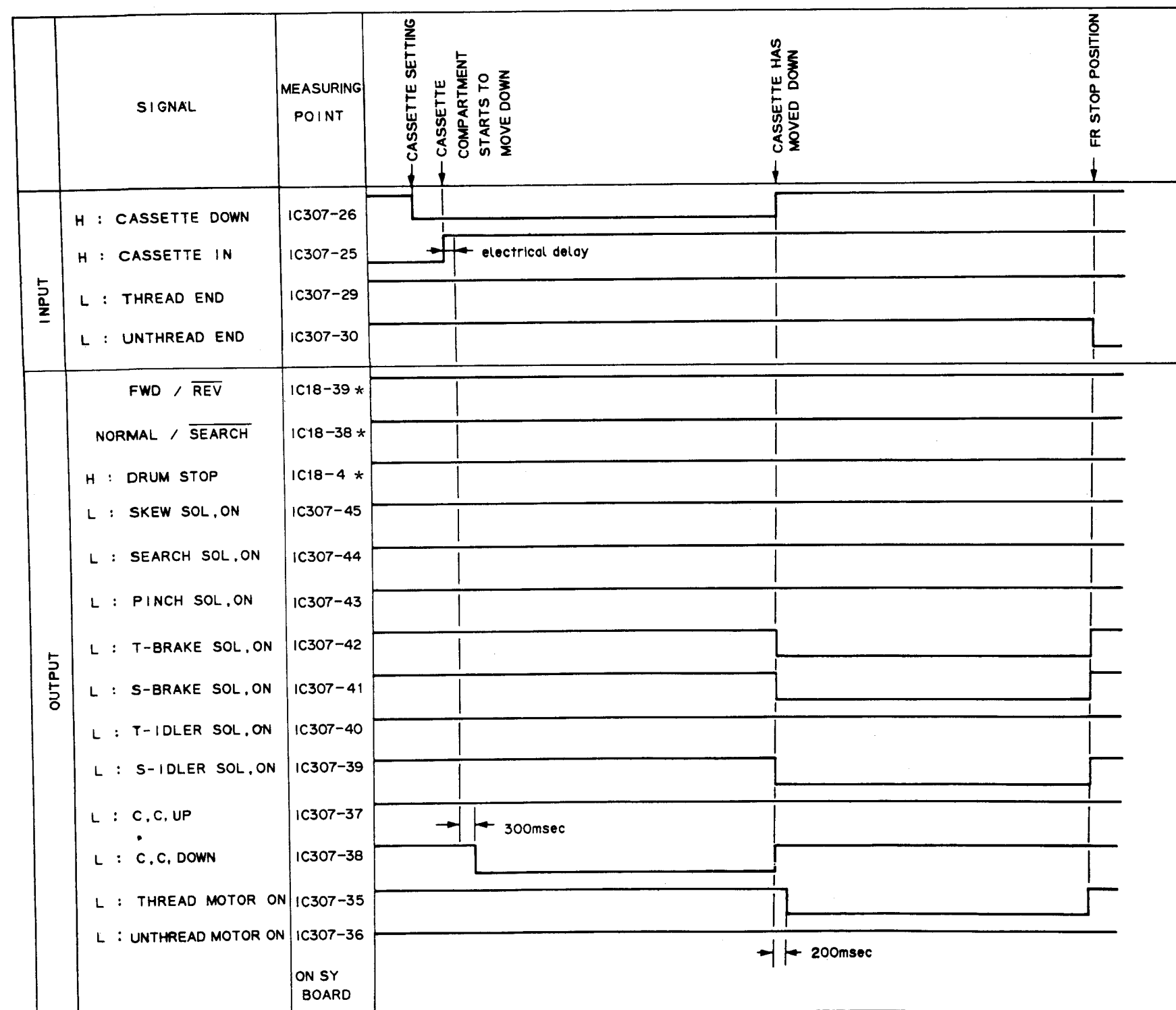
2-12. TIMING CHART

Mode Conversion Diagram



NOTE : Number in the Figure means title number of
Timing chart.

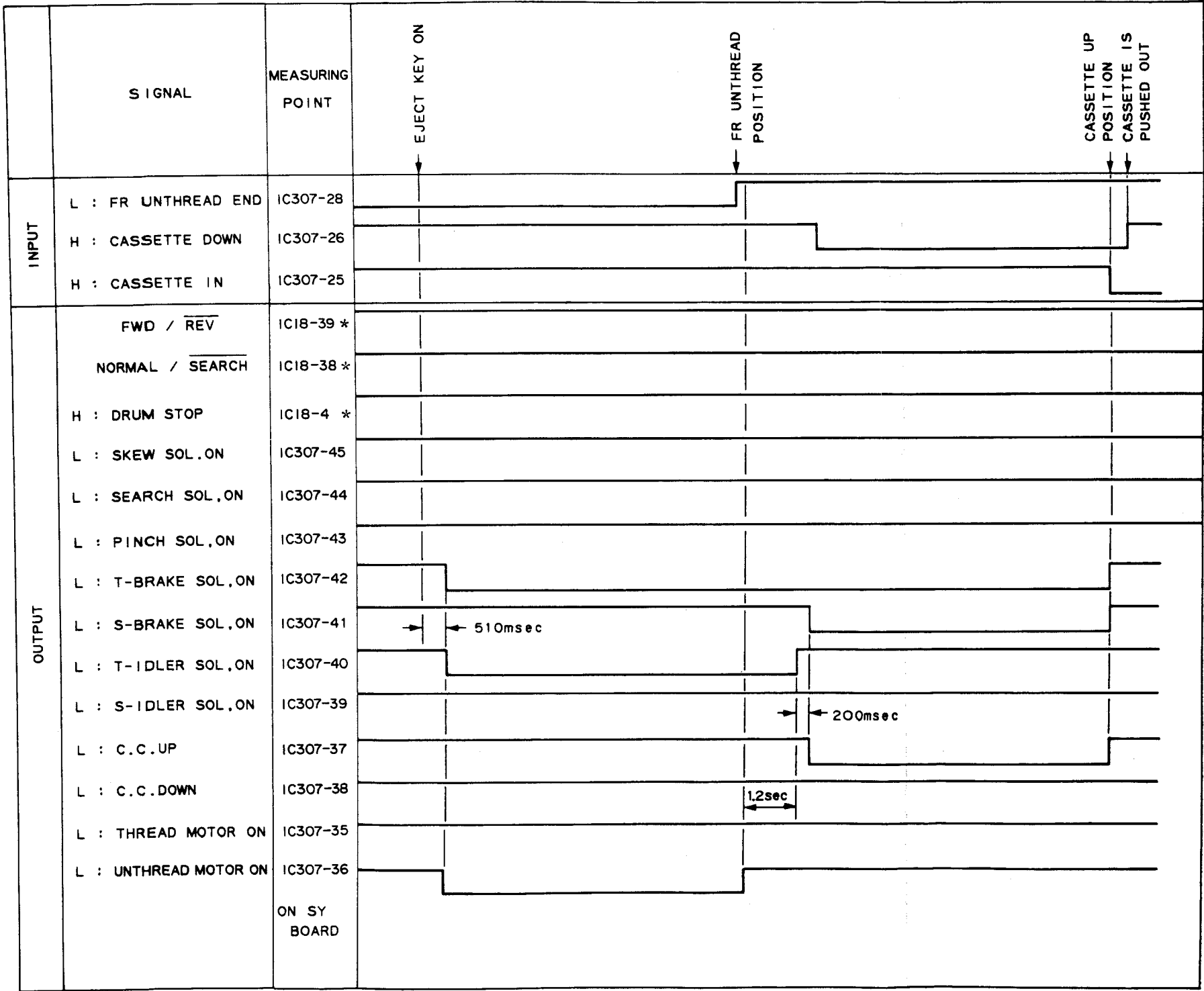
1. THREADING OPERATION (CASSETTE IN→CASSETTE DOWN→FR STOP POSITION)



* NOTE: IC18 is on the SV board

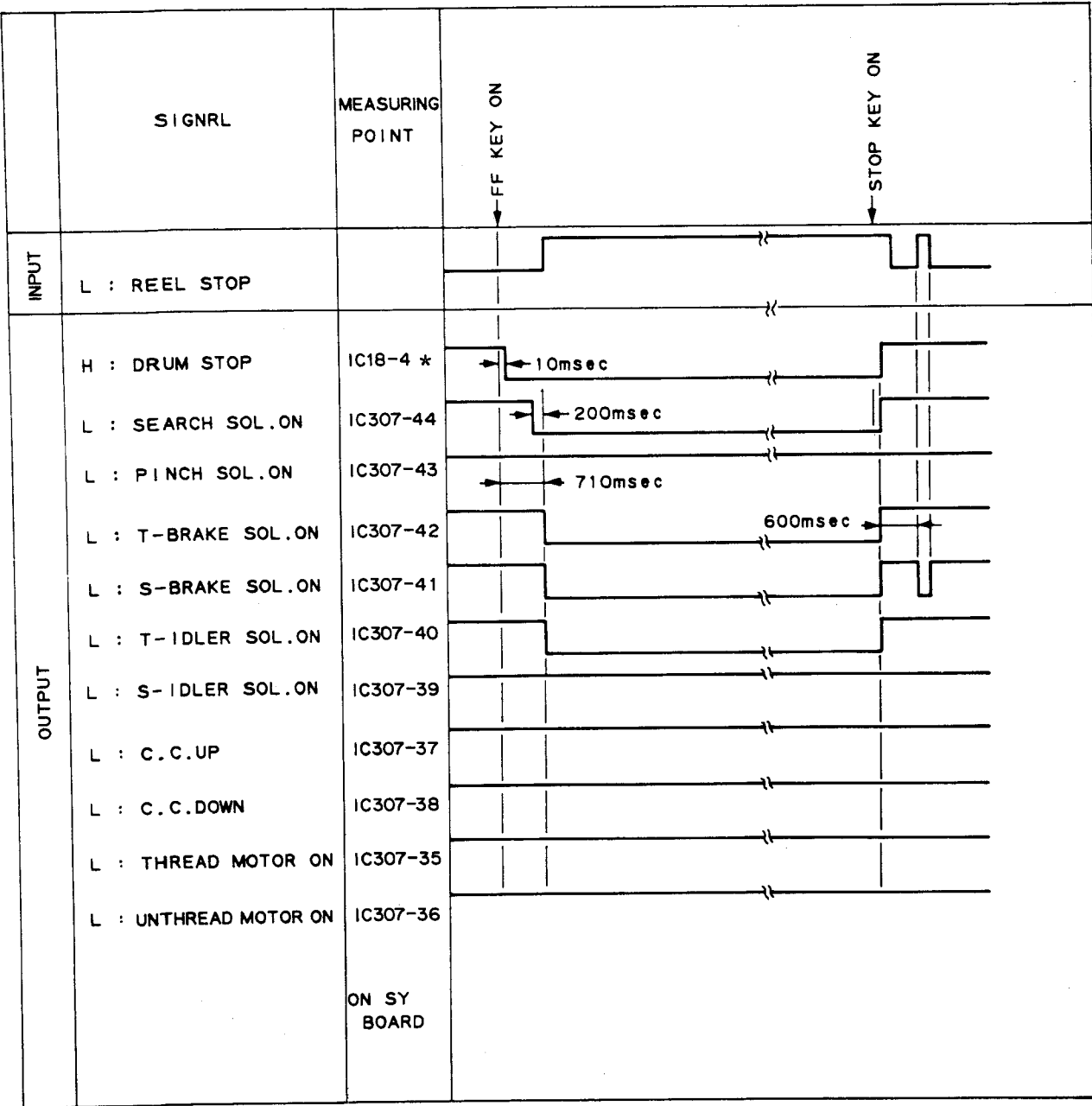
C.C. = CASSETTE UP COMPARTMENT

2. UNTHREADING OPERATION (FR STOP POSITION → FR UNTHREAD END POSITION → CASSETTE UP)



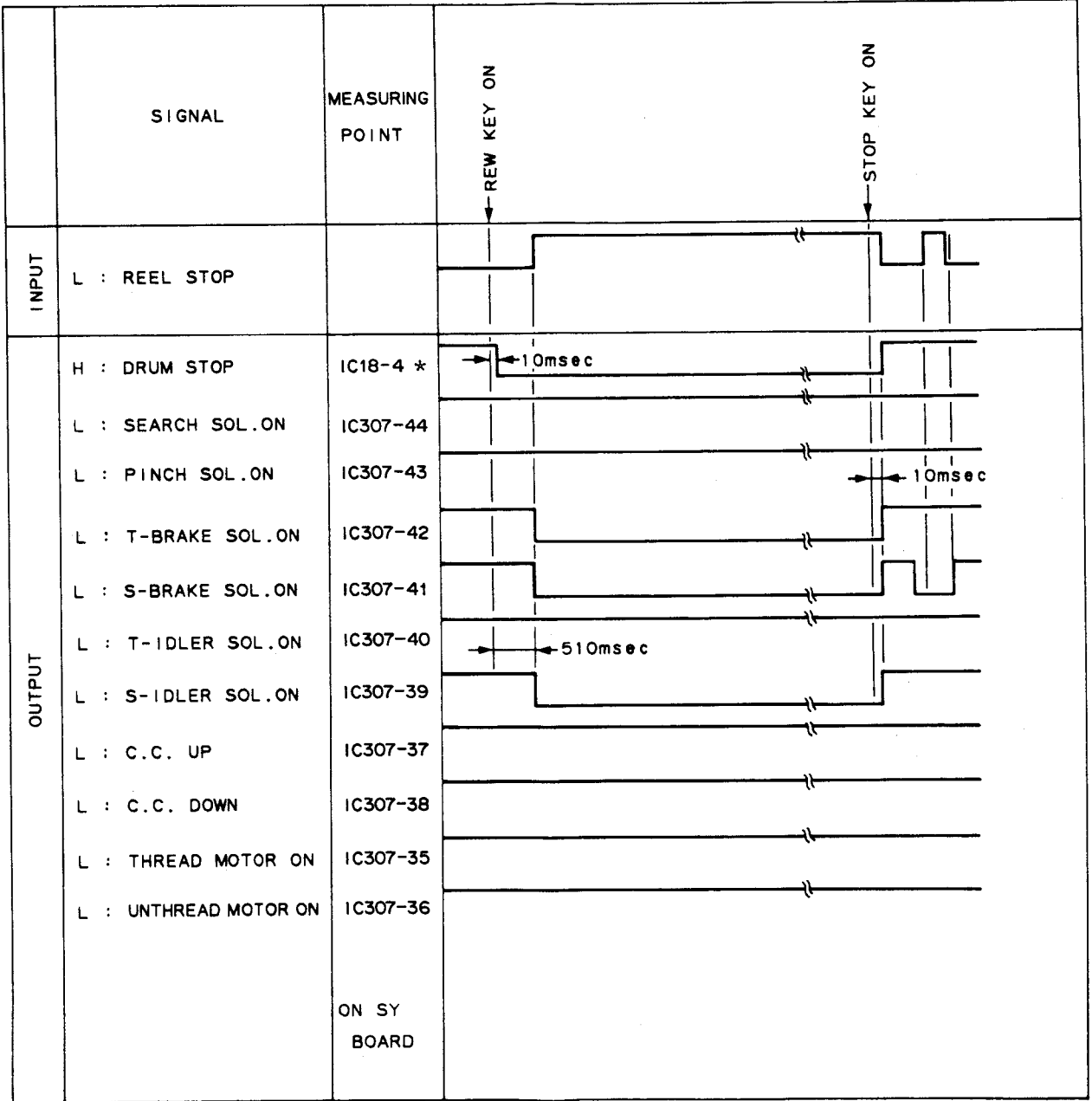
* NOTE: IC18 is on the SV board

3. FF MODE (FR STOP→FF→FR STOP)



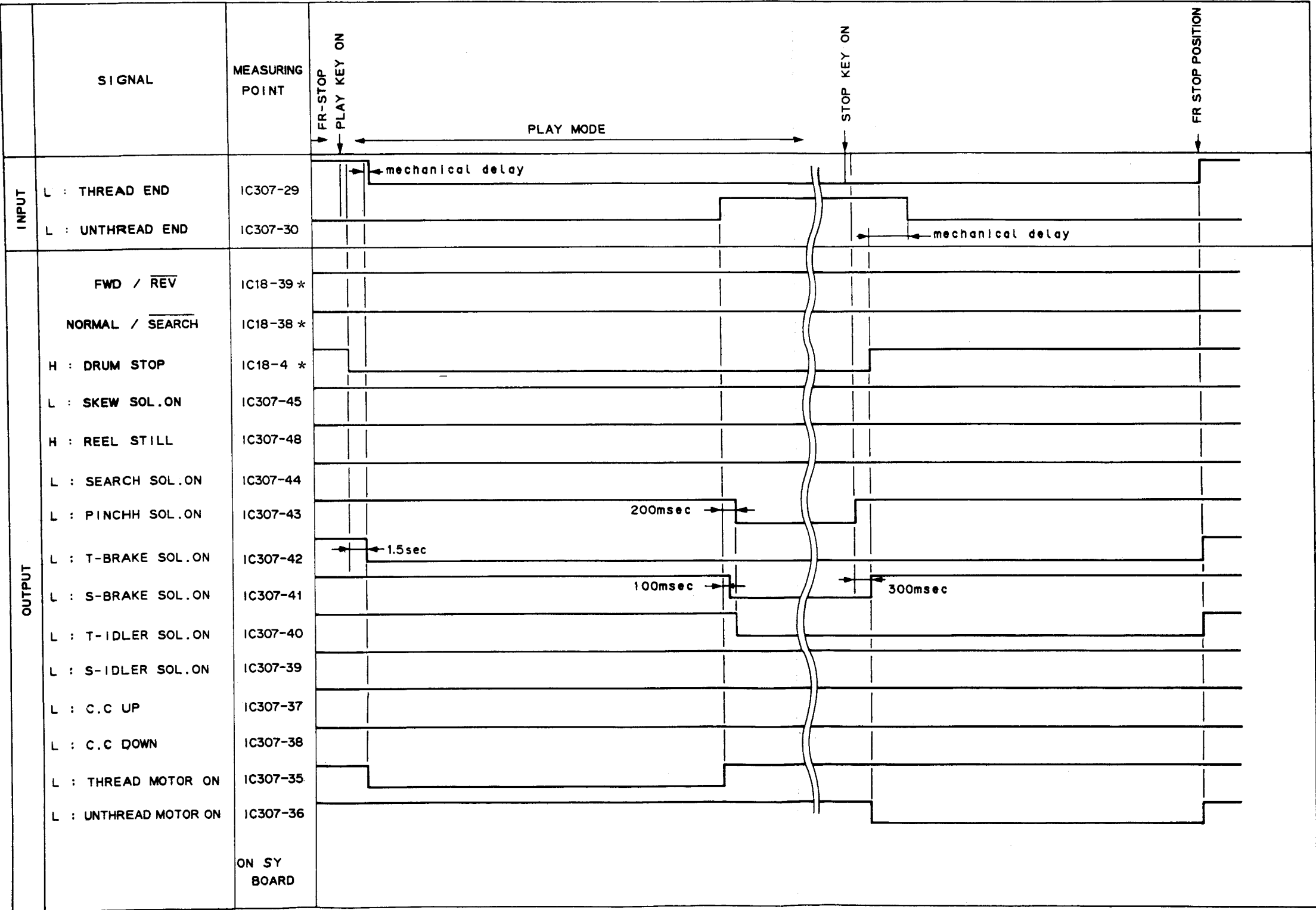
* NOTE: IC18 is on the SV board

4. REW MODE (FR STOP→REW→FR STOP)



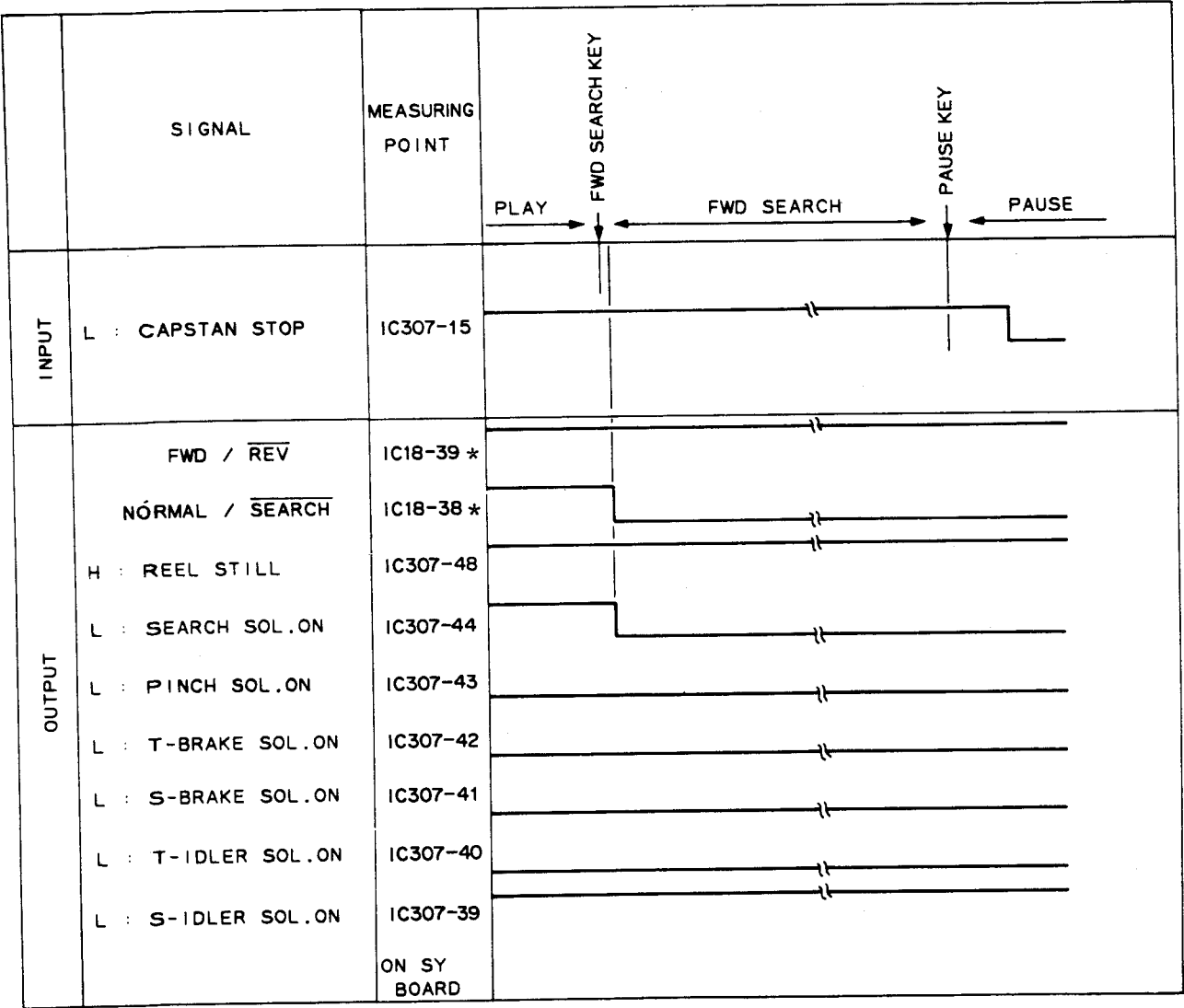
* NOTE: IC18 is on the SV board

5. PLAY MODE (FR STOP→PLAY→FR STOP)



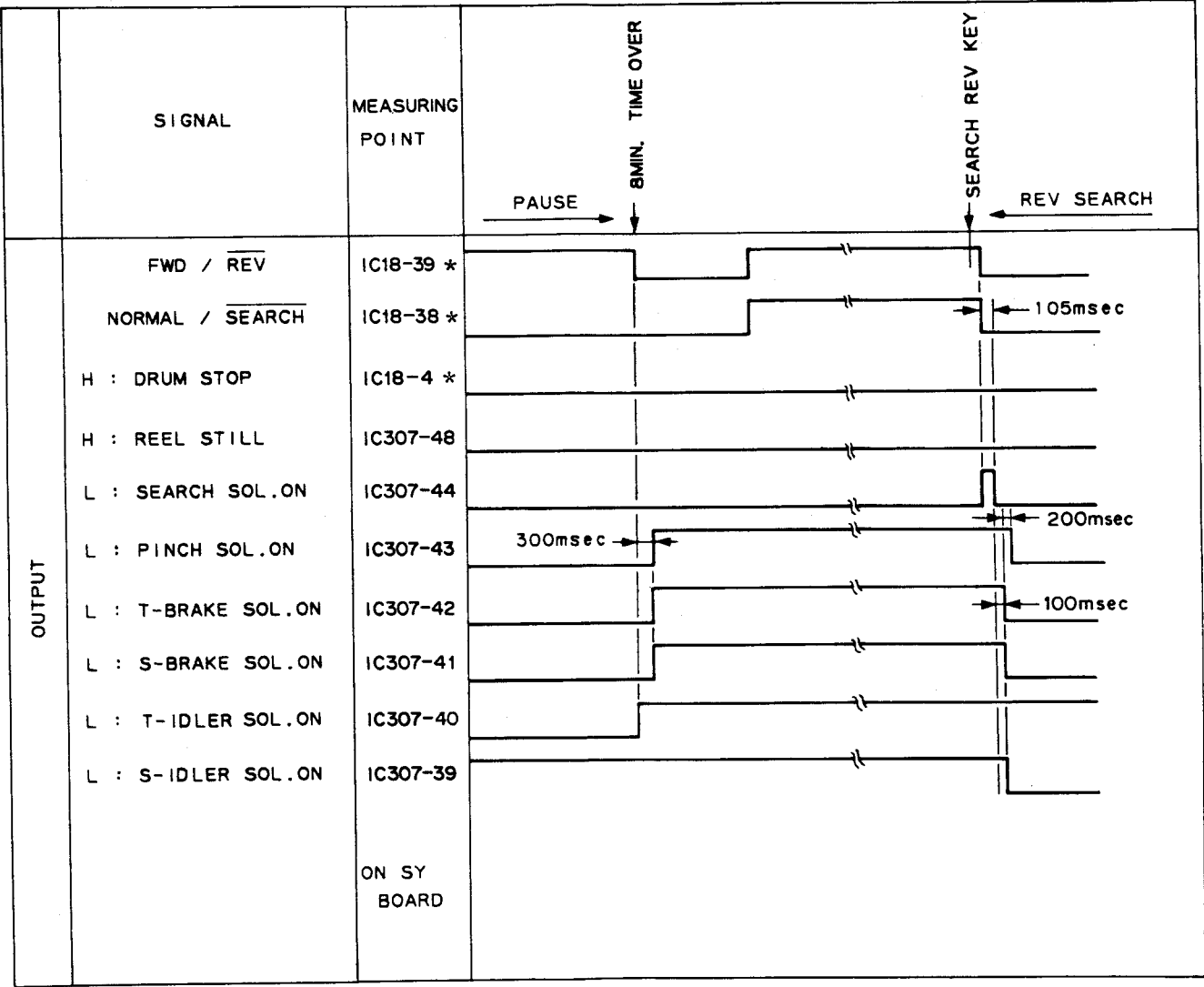
* NOTE: IC18 is on the SV board

6. PLAY→FWD SEARCH→SEARCH PAUSE



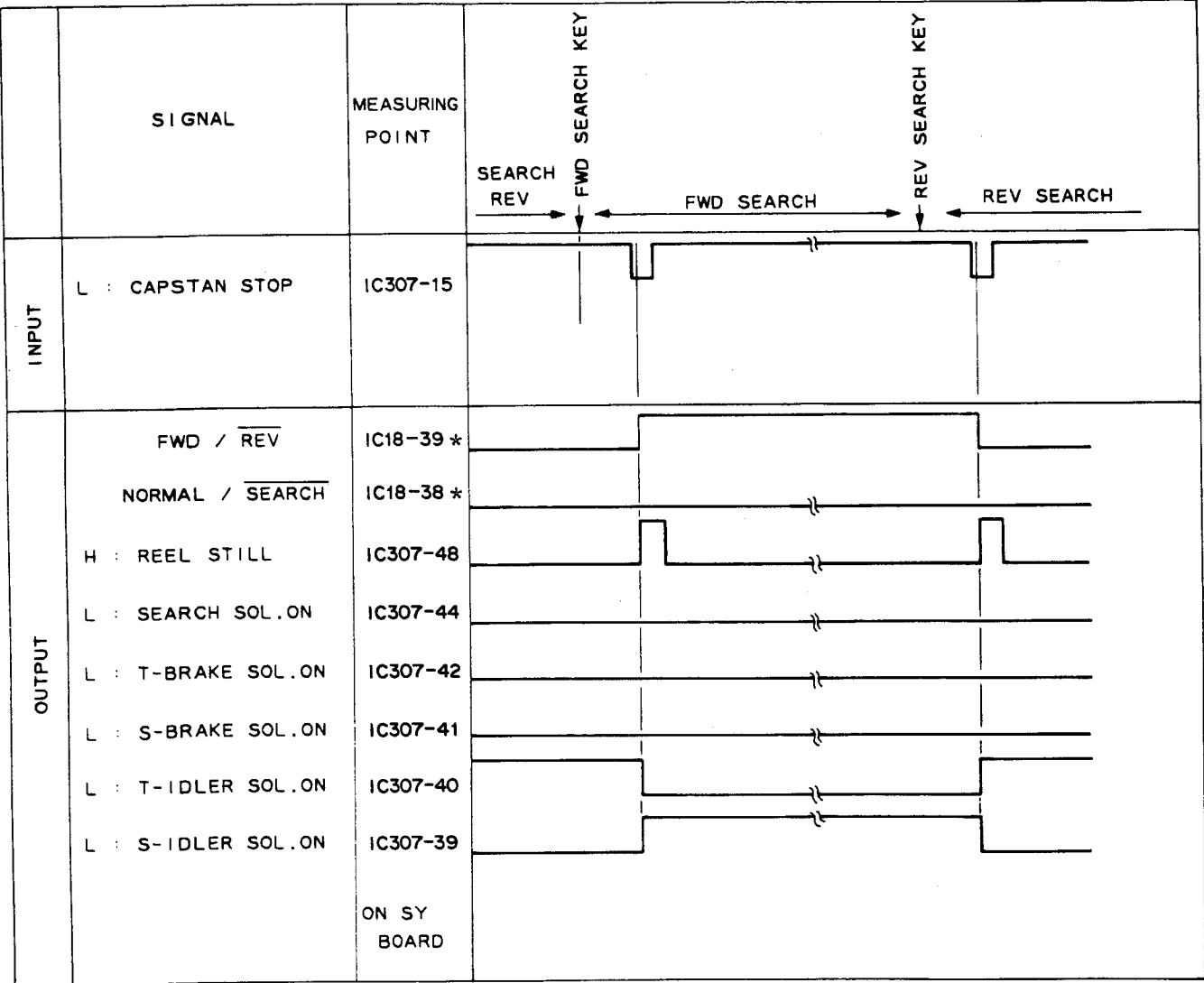
* NOTE: IC18 is on the SV board

7. PLAY PAUSE→LONG PAUSE→REV SEARCH



* NOTE: IC18 is on the SV board

8. REV SEARCH → (FWD PAUSE) → FWD SEARCH → (FWD PAUSE) → REV SEARCH



* NOTE: IC18 is on the SV board

2-13. FIXTURE

Part No.	Description
J-6001-820-A	Drum Eccentricity Gauge (3)
J-6001-830-A	Drum Eccentricity Gauge (2)
J-6001-840-A	Drum Eccentricity Gauge (1)
J-6001-930-A	Drum Eccentricity Gauge (4)
J-6009-830-A	Flatness Plate
J-6026-240-A	Adjustment Driver
J-6130-010-A	Reel Table Height Check Base Jig
J-6130-020-A	Reel Table Height Check Jig
J-6153-020-A	Dihedral Adjustment Driver
J-6150-140-A	Eccentricity Screwdriver (6 mm dia.)
J-6153-580-A	Pinch Lever Adjustment Jig
Y-2031-001-0	Cleaning Fluid
2-034-697-00	Cleaning Piece
3-702-216-01	Back Tension Adjustment Jig
3-702-391-01	Eccentricity Screwdriver (5 mm dia.)
7-661-018-01	Sony Oil
7-732-050-20	Tension Scale (50g)
7-732-050-30	Tension Scale (100g)
7-732-050-40	Tension Scale (200g)
7-732-050-50	Tension Scale (500g)
8-899-999-53	Torque Measurement Tape
8-960-035-61	Alignment Tape, RR5-2SC PAL
8-960-020-62	Alignment Tape, RR5-2SB PAL
8-960-036-02	Alignment Tape, RR2-1SD PAL
8-960-036-80	Alignment Tape, RR5-1SD PAL
9-911-053-00	Thickness Gauge

SECTION 3

PERIODIC CHECK AND MAINTENANCE

It is recommended that the following periodic check and maintenance schedule be employed in order to obtain maximum performance and longer tape life from the unit.

3-1. MAINTENANCE AFTER REPAIRS

Perform the following maintenance after repair regardless the operating hours of the machine.

(1) Cleaning of the video heads.

- . Press the cleaning piece moistened with the cleaning fluid and turn the drum slowly with hand, cleaning the heads.

(Never turn the motor by the electric power for the cleaning.)

- . Never move the cleaning piece in the vertical direction of head tip in the cleaning. It tends to damage the video head tips.

(2) Cleaning of tape running system

- . Wipe the tape bearing surfaces (of the tape guide, drum, capstan, and pinch roller) with cleaning piece saturated with the cleaning fluid.

(3) Cleaning of drive system

- . Wipe the drive system (such as belt, idler, and reel table surface) with cleaning piece saturated with the cleaning fluid.

3-2. PERIODIC CHECK

Perform the maintenance checks described separately in accordance with the operational hours of the unit.

3-3. HOURS METER

This VTR has an hours meter. The hours meter has two display modes, and these modes can display on the Time Counter Display.

Two display modes are as follows:

1. Displays the accumulated time of the rotation of the upper drum. The data from 0 to 15000 hours can be displayed.
2. Displays the accumulated power-on time. The data from 0 to 15000 hours can be displayed.

It is recommended to perform the periodic check and maintenance based on the hours meter.

How to put the Time Counter Display into the Hours Meter mode, please refer to Section 2-11. Dial Menu Operation.

HOURS METER mode:

- . Menu No.205: HOURS METER (DRUM)
Rotation time of the upper drum
- . Menu No.206: HOUR METER
Power-on time

3-4. OTHERS

(1) Sony oil

- . Be sure to use the Sony oil as the lubrication oil. (If oil other than the Sony oil is used, various troubles due to different viscosity tends to be caused.)

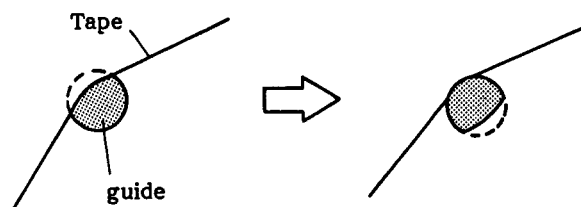
Sony oil: Part No. 7-661-018-01

- . Use the Sony oil in which dust or other foreign material have not mixed for lubricating the bearing. (If foreign material is in the oil, wear or burning of the bearing tends to be caused.)

○ : Cleaning ♦ : Replacement ◇ : Check (Adjustment) ◎ : Rotation

Item	Operating hours(H)		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	Reference	Reference of Exploded View
	Part No.	Menu No.												
Tape path block	—	205	○	○	○	○	○	○	○	○	○	○	—	—
Upper drum ass'y (DUR-44-R)	A-6709-617-A	205	○	♦	○	♦	○	—	○	♦	○	♦	4-1	16-13
Head drum ass'y (DUH-44B-R)	A-6709-675-A	205	○	○	○	○	○	♦	○	○	○	○	4-2	16-13
Audio/CTL head	8-825-578-22	205	○	○	○	○	○	♦	○	○	○	○	4-7	16-13
Time code head (PP295-58)	8-825-771-31	205	○	○	○	○	○	♦	○	○	○	○	—	16-15
FR CTL head (PP170-58)	8-825-514-20	205	○	○	○	○	○	♦	○	○	○	○	4-4	16-15
Full erase head	8-825-544-20	205	○	○	○	○	○	♦	○	○	○	○	—	16-15
Pinch roller ass'y	A-6750-223-A	205	○	♦	○	♦	○	♦	○	♦	○	♦	4-9	16-9
Capstan motor (BHF-1915B)	8-835-258-02	205	—	—	—	—	—	♦	—	—	—	—	4-3	16-13
Reel driving motor (FN30-T26N1E)	8-835-178-01	205	—	—	—	—	♦	—	—	—	—	♦	—	16-3
Threading motor (DNR-4700A)	1-541-376-11	205	—	—	—	—	♦	—	—	—	—	♦	4-10-2	16-9
Tape guide, TG-3	3-660-102-00	205	○	○	○	○	○	◎	○	○	○	○	—	16-13
Tape guide, TG-4	3-718-388-01	205	○	○	○	○	○	◎	○	○	○	○	—	16-13
* Reel belt	3-668-785-00	205	○	○	○	♦	○	○	○	♦	○	○	—	16-7
* Threading belt	3-672-737-01	205	○	○	○	♦	○	○	○	♦	○	○	4-10-3	16-9
Reel table ass'y	A-6739-017-A	205	○	○	○	○	○	♦	○	○	○	○	—	16-3, 16-5
* Idler tire ass'y	X-3646-026-0	205	○	○	○	♦	○	○	○	♦	○	○	—	16-5
* Tension regulator band ass'y	X-3668-707-0	205	—	—	—	♦	—	—	—	♦	—	—	—	16-3
* Lining holder ass'y	X-3668-749-0	205	—	—	—	♦	—	—	—	♦	—	—	—	16-3, 16-5
* R brake ass'y	X-3668-737-0	205	—	—	—	♦	—	—	—	♦	—	—	—	16-5
Idler pulley block ass'y	A-6740-069-B	205	—	—	—	—	—	♦	—	—	—	—	—	16-7
Worm pulley ass'y	X-3668-743-0	205	—	—	—	♦	—	—	—	♦	—	—	—	16-9
Check the FWD back tension	—	205	—	◇	—	◇	—	◇	—	◇	—	◇	6-5	—
Check the brake torque	—	205	—	◇	—	◇	—	◇	—	◇	—	◇	6-1	—

- (NOTE 1) The Upper Drum Ass'y is included in the Head Drum Ass'y.
When replacing the Head Drum Ass'y, the Upper Drum Ass'y is replaced together.
- (NOTE 2) Be sure to clean the tape run area in repairing.
- (NOTE 3) Operating hours (such as replacement, check and so on) will be different in operating environment.
- (NOTE 4) We recommend you to replace early the * marked parts for maintenance of the best condition.
- (NOTE 5) Ⓒ (Rotation) marked item means to turn the tape guide by hand so that the worn portion of the tape guide doesn't touch a tape. Turn the tape guide by 180°.



SECTION 4

REPLACEMENT OF MAJOR PARTS

4-1. REPLACEMENT OF THE UPPER DRUM

The Rotary Video Heads cannot be replaced individually. The entire Upper Drum Assembly should be replaced when any of these heads fails.

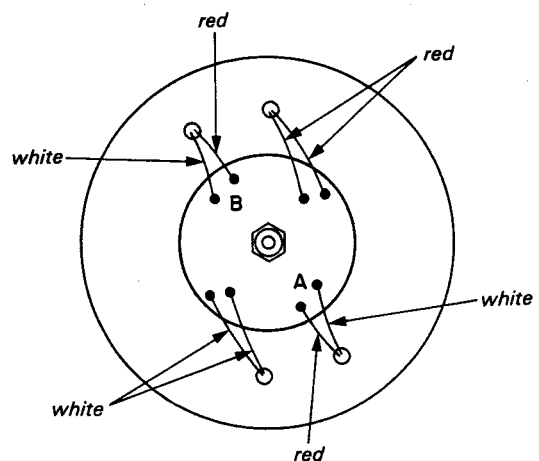
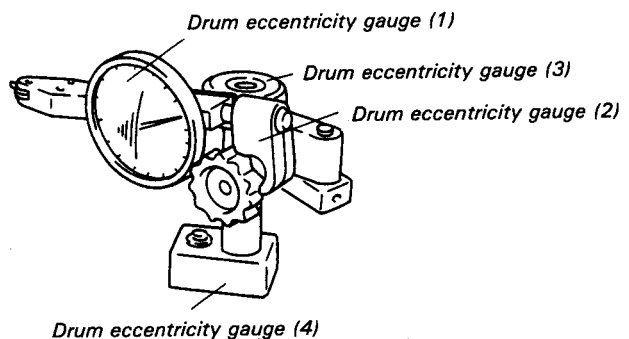
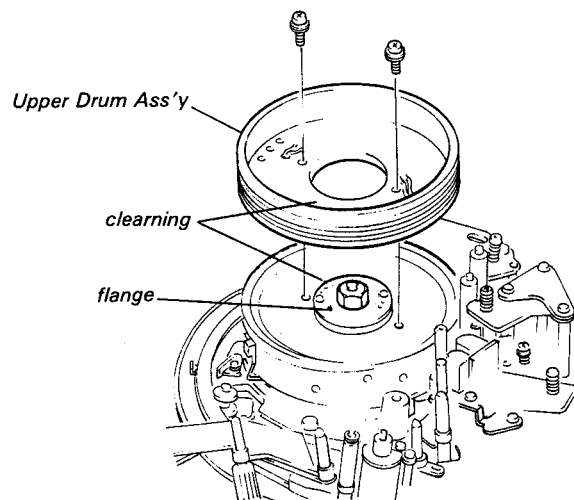
Tool: Drum eccentricity gauge (1)
 Drum eccentricity gauge (2)
 Drum eccentricity gauge (3)
 Drum eccentricity gauge (4)

Replacement procedure:

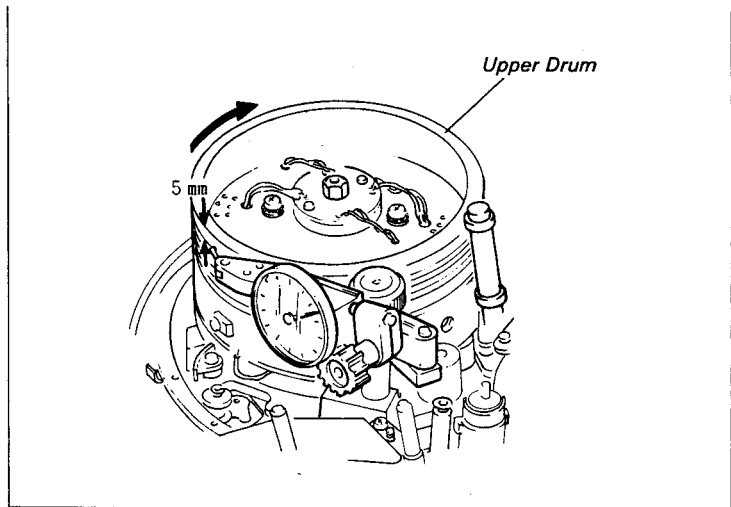
- (1) Unsolder the eight leads of the video head from the printed circuit board. Remove the two fixing screws and then remove the Upper Drum Assembly from the Head Drum Assembly.
- (2) Clean the matching surfaces of the flange and new Upper Drum Assembly with a cloth moistened with cleaning fluid. (If there is a spacer between the drum and the flange, it should be left on the flange. If the spacer is lost, correct interchangeability cannot be obtained.)
- (3) Place the Upper Drum Assembly so that the three red leads matches side "B" of the printed circuit board as shown in the figure. Thread the two fixing screws snugly but do not tighten them.

Adjustment procedure:

- (1) Remove the S Guard Block. (The connector at the bottom of the S Guard is inserted into the connector on the chassis.)
- (2) Assemble the Drum Eccentricity Gauges (1), (2), (3) and (4) as shown in the figure. Set the assembled gauges on the unit so that the probe tip is positioned at a point about 5 mm from the top edge of the Upper Drum.
- (3) Turn the Upper Drum slowly in the clockwise direction and check that the gauge deflection is within 5 microns during one complete revolution of the Upper Drum. If it is within specification, proceed with the Step (5). If it is not, perform Step (4).



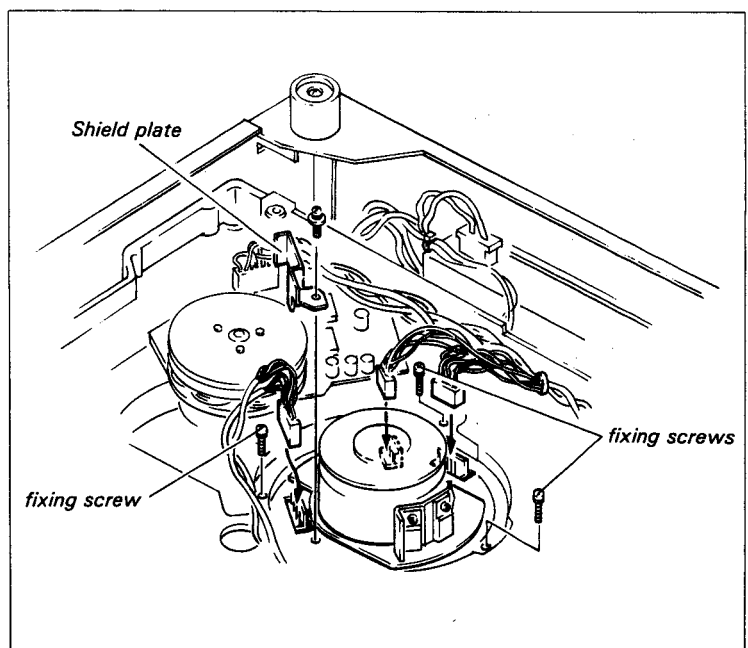
- (4) Tap the inside of the Upper Drum with a nylon hammer or a screwdriver handle until the gauge deflection remains within 5 microns.
- (5) After the adjustment, alternately tighten the two fixing screws of the Upper Drum. (Tightening torque: 14 to 16 kg-cm)
- (6) After tightening the screws, check that the gauge deflection is within 5 microns.
- (7) Solder the eight leads from the video heads to the printed circuit board as shown in the figure.
- (8) Install the S Guard Block. (Insert the connector at the bottom of the S Guard Block securely into the connector on the chassis.)
- (9) Adjust as described in Section 4-11.



4-2. REPLACEMENT OF THE DRUM ASSEMBLY

Replacement procedure:

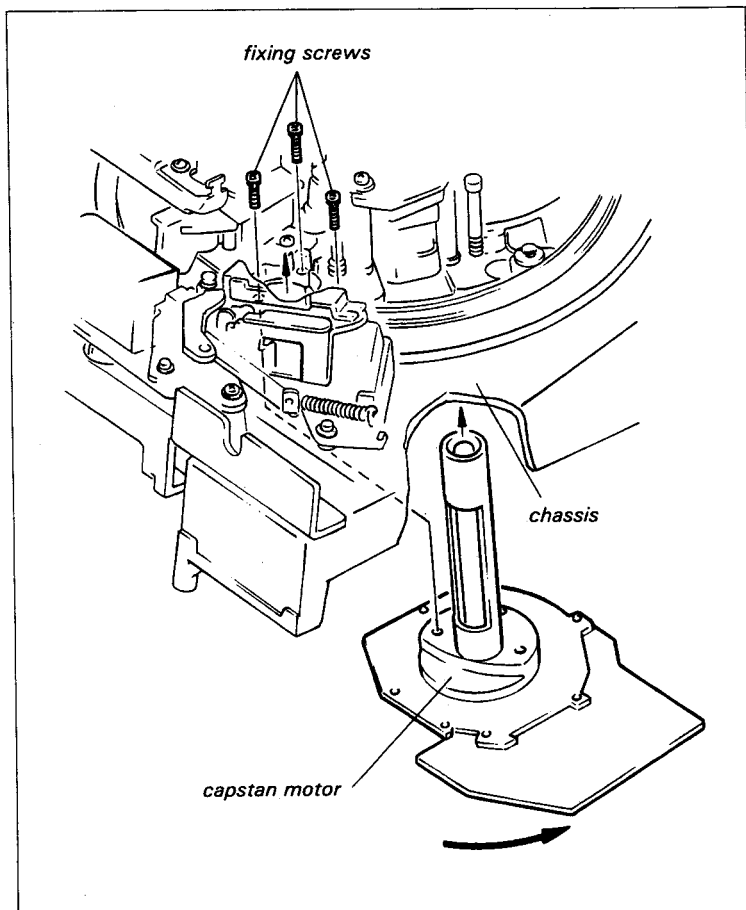
- (1) Remove the Shield Plate.
- (2) Disconnect the three connectors of the drum assembly on the back of the unit.
- (3) Remove the three fixing screws which hold the drum.
- (4) Install the drum on the base while turning the drum assembly in the clockwise direction when viewed from top of the unit.
- (5) Connect the three connectors.
- (6) Tighten the fixing screw of the Shield Plate.
- (7) Adjust as described in Section 4-11.



4-3. REPLACEMENT OF THE CAPSTAN MOTOR

Replacement procedure:

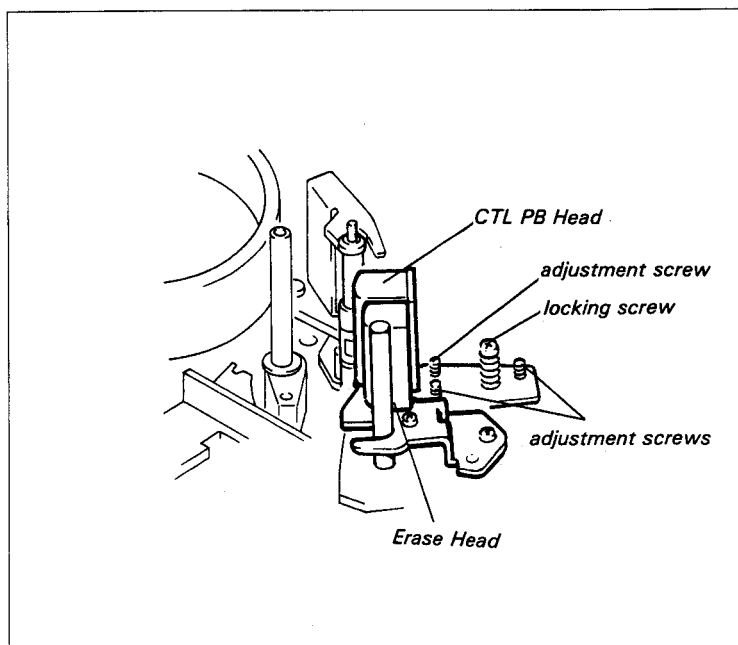
- (1) Remove the Capstan Motor from the unit.
- (2) Install the new Capstan Motor and thread the three fixing screws snugly but do not tighten them.
- (3) Tighten the fixing screws while turning the Capstan Motor in the direction of the arrow.
- (4) Adjust as described in Section 4-11.



4-4. REPLACEMENT OF THE FR CTL (CTL PB) HEAD

Replacement procedure:

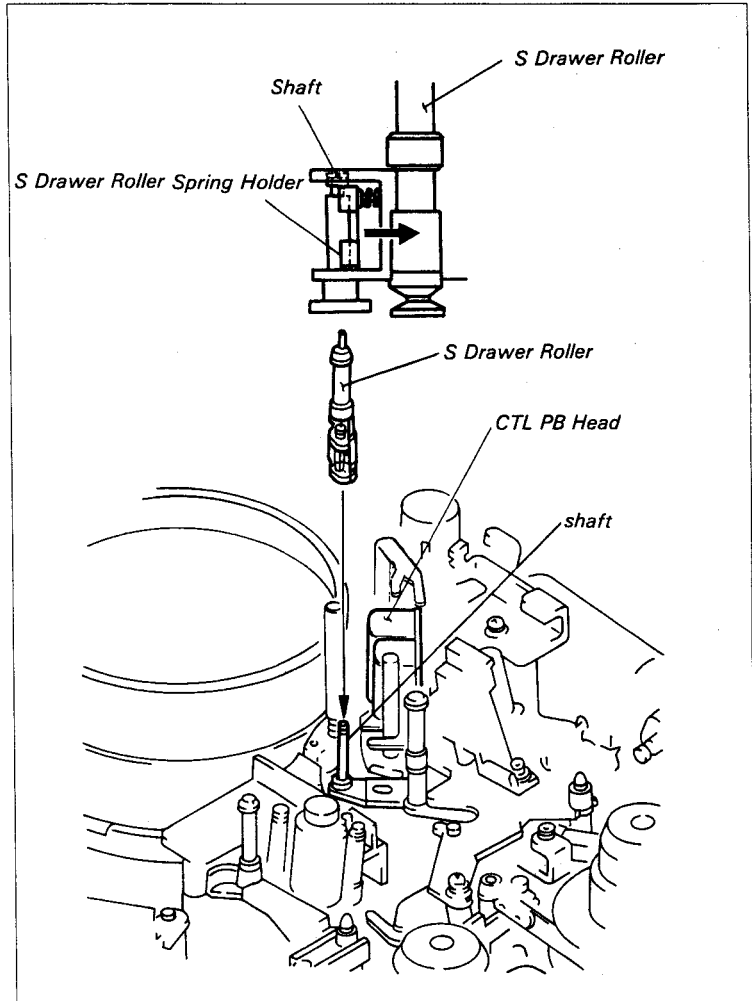
- (1) Disconnect CN341 and CN342 on the EC-32 Board.
- (2) Remove the locking screw and remove the CTL PB Head Block from the unit. Never tighten or loosen the three adjustment screws.
- (3) Remove the two fixing screws at the bottom of the bracket and remove the head.
- (4) Remove the EC-32 Board from the head and solder it to the new head.
- (5) Perform steps (1) to (3) in reverse order.
- (6) Adjust as described in Section 4-11.



4-5. REPLACEMENT OF THE S DRAWER ROLLER

Replacement procedure:

- (1) Put the unit into the EJECT completion mode without a cassette tape.
- (2) Turn the pulley of the Gear Box by hand until the S Drawer Roller comes in front of the CTL PB Head.
- (3) Remove the S Drawer Roller from the shaft while pushing the spring holder in the direction of the arrow.
- (4) Smear a little Sony Grease in the notch at the bottom of the new S Drawer Roller.
- (5) While pushing the spring holder in the direction of the arrow, install the new S Drawer Roller onto the shaft until the S Drawer Roller locks to the shaft.
- (6) Adjust as described in Section 4-11.



4-6. REPLACEMENT / ADJUSTMENT OF THE TAPE GUIDES ON THE THREADING RING

. There are three tape guides on the Threading Ring. This section describes the replacement of the three tape guides and the width adjustment of the two tape guides.

Tool: slide vernier callipers of equivalent
L-shaped hexagonal wrench
(across flat has 1.27 mm)

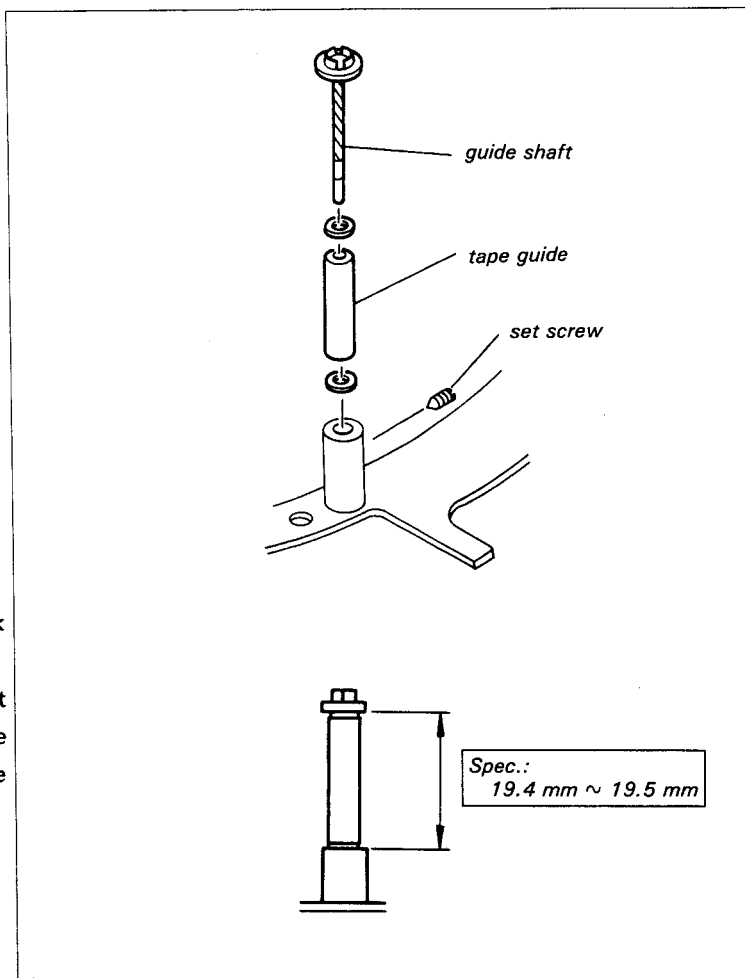
Mode: Put the unit into the FR-STOP mode
without a cassette tape.

Replacement procedure:

- (1) Loosen the set screw of the boss and remove the guide shaft.
- (2) Clean the guide shaft with a cloth moistened with cleaning fluid.
- (3) Assemble the guide.
- (4) Adjust the height of the sub-ring guide as shown in the figure.
- (5) Adjust as described in Section 4-11.

Adjustment procedure:

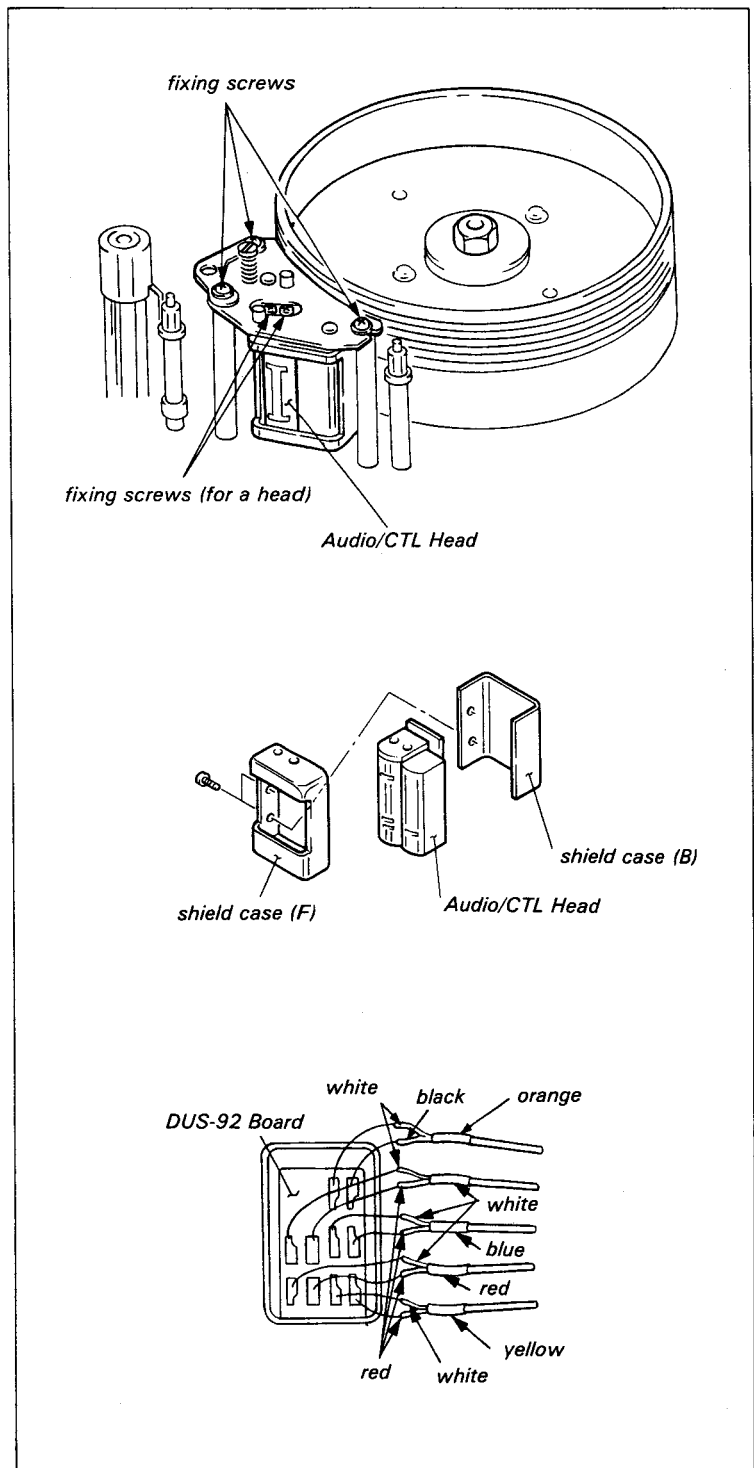
- (1) Adjust the height of the tape guide and tighten the set screw of the boss. Check that the guide roller turns smoothly.
- (2) Insert the cassette tape and put the unit into the PLAY mode. Check that the tape runs along the upper flange of the tape guide without curling.
- (3) Adjust as described in Section 4-11.



4-7. Replacement of the Audio/CTL Head

Replacement procedure:

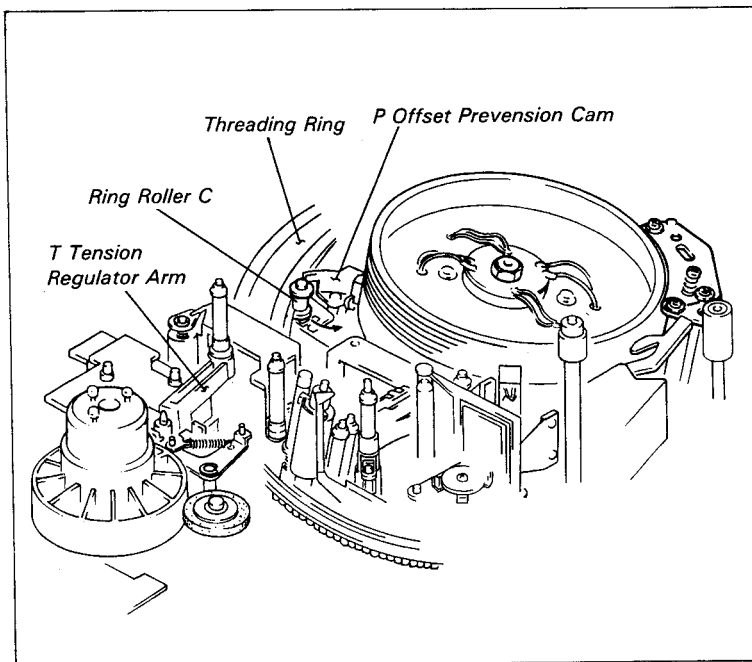
- (1) Remove the Audio/CTL Head Block from the unit after removing the three fixing screws as shown in the figure.
- (2) Remove the Audio/CTL Head and the shield case (F and B) after removing the two fixing screws as shown in the figure.
- (3) Remove the two fixing screws from the shield case.
- (4) Unsolder the ten leads from the printed circuit board and remove the DUS-92 Board from the head.
- (5) Replace the head with a new one and solder the leads to the DUS-92 Board as shown in the figure.
- (6) Perform steps (1) to (3) in reverse order.
- (7) Adjust as described in Section 4-11.



4-8. REPLACEMENT OF THE THREADING RING

Replacement procedure:

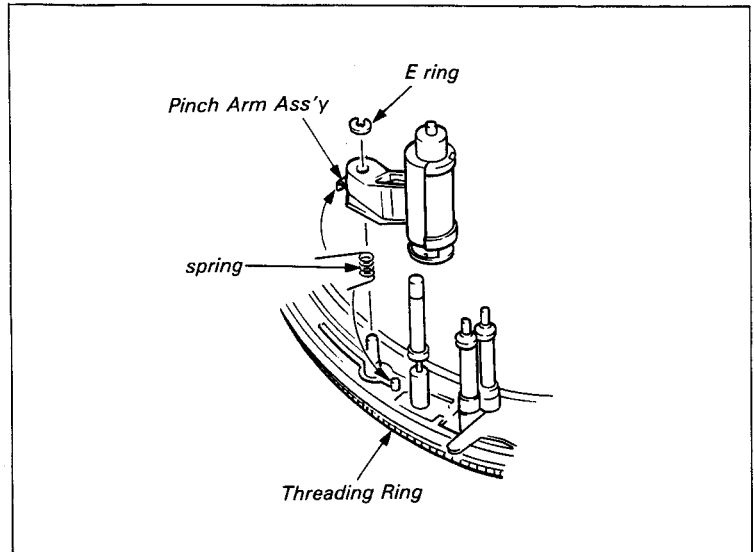
- (1) Remove the E Head Base Block from the unit after removing the three fixing screws.
- (2) Remove the S Guard Assembly and the FR Detector from the unit.
- (3) Loosen the two fixing screws from the Threading Gear Block and remove it from the Threading Ring.
- (4) Loosen the fixing screw and then move the Ring Roller (C) and the P Offset Prevention Cam in the direction of the arrow.
- (5) Remove the Threading Ring from the unit and replace it with a new one.
- (6) Perform steps (1) to (4) in reverse order.
- (7) Adjust as described in Section 4-11.



4-9. REPLACEMENT OF THE PINCH ROLLER

Replacement procedure:

- (1) Turn the pulley of the Gear Box until the S Drawer Roller is in front of the CTL PB Head.
- (2) Remove the Pinch Arm Assembly from the Threading Ring after removing the E ring.
- (3) Replace the Pinch Roller Assembly with a new one.
- (4) Install the Pinch Roller Assembly on the Threading Ring as shown in the figure.
- (5) Adjust as described in Section 4-11.

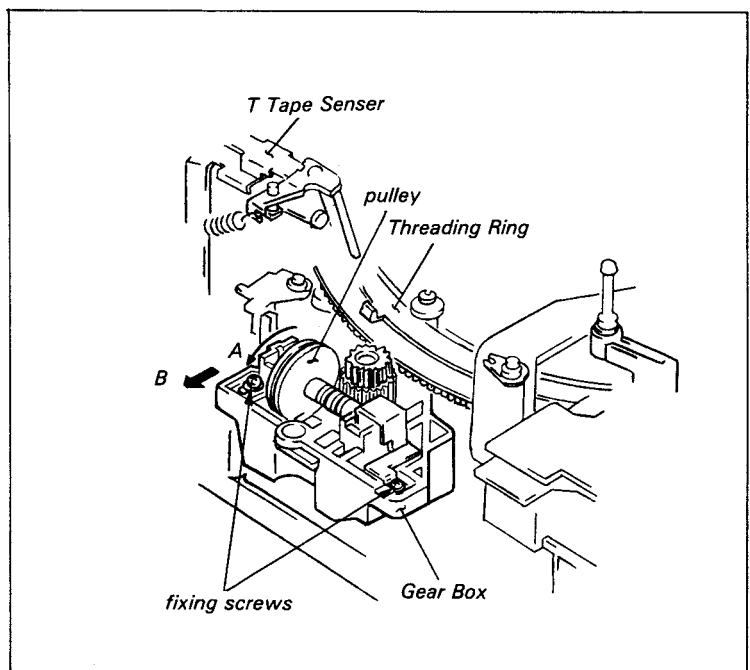


4-10. REPLACEMENT OF THE THREADING GEAR BOX SYSTEM

4-10-1. Replacement of the Threading Gear Box

Replacement procedure:

- (1) Put the unit into the EJECT mode and turn the power OFF.
- (2) Remove the T Tape Sensor from the gear box after removing the fixing screw.
- (3) Remove the two fixing screws of the gear box after turning the pulley 1 revolution in the direction of arrow A. Move the gear box in the direction of arrow B and remove it from the unit.
- (4) Remove the harness from the clamber and disconnect CN511 from the SY-141B Board.
- (5) Replace the gear box with a new one.
- (6) Perform steps (3) and (4) in reverse order.
- (7) Put the gear box on the chassis and thread the two fixing screws snugly but do not tighten them. Tighten the two fixing screws of the gear box after pushing the Threading Ring to the gear.
- (8) Adjust as described in Section 4-11.

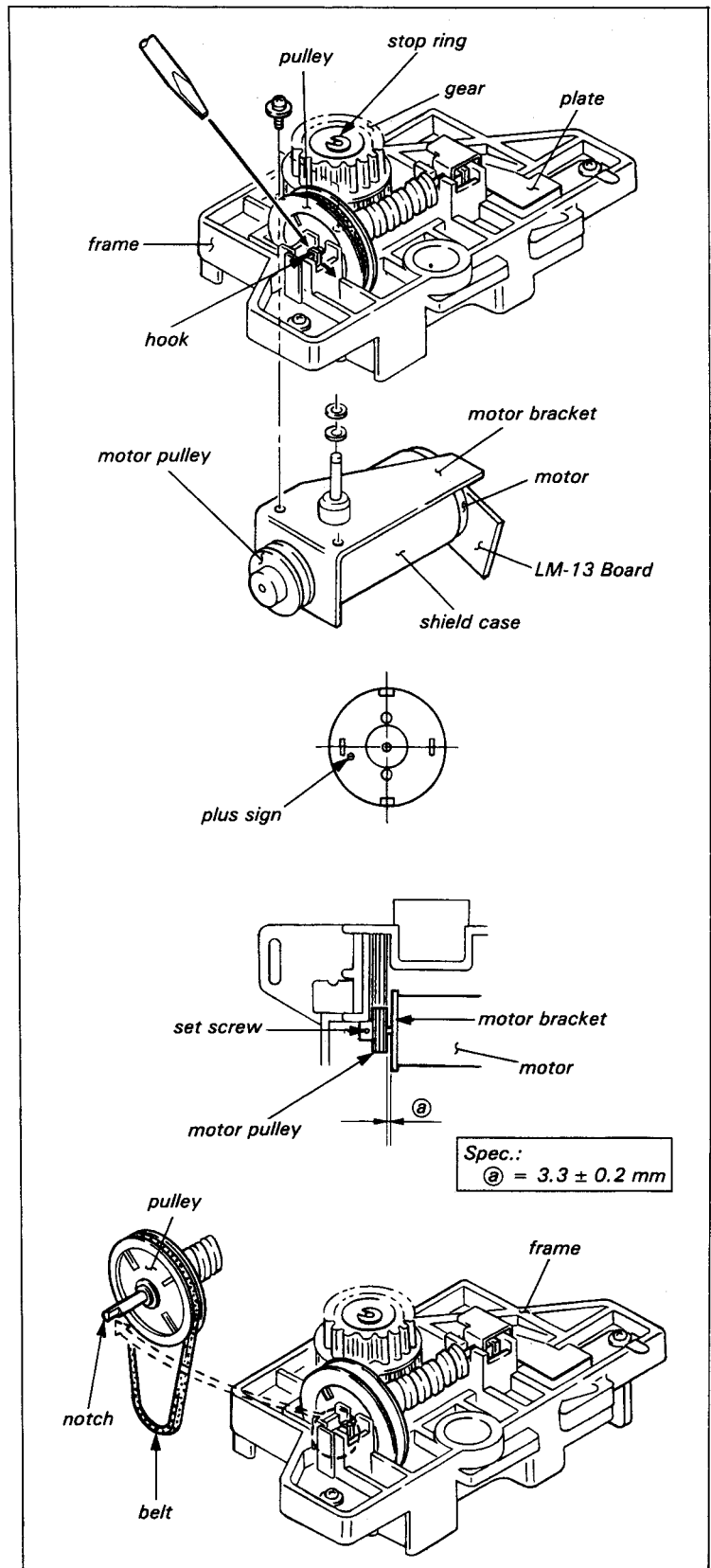


4-10-2. Replacement of the Threading Motor

Tool: L-shaped hexagonal wrench
(across flat has 1.5 mm)

Replacement procedure:

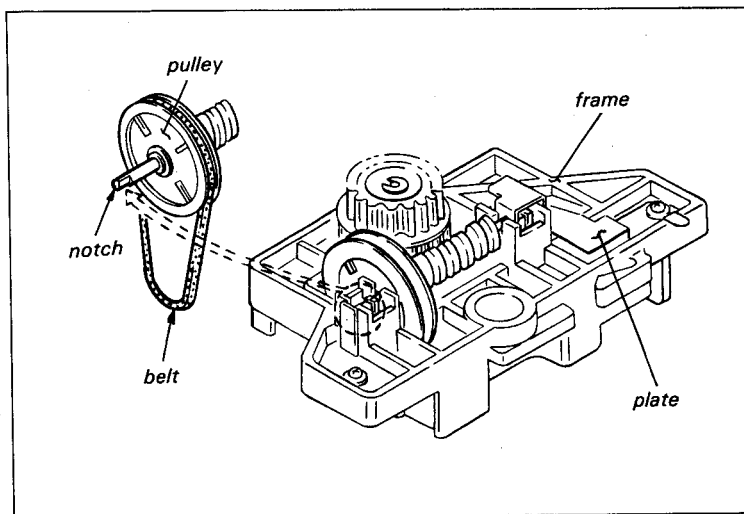
- (1) Perform steps (1) to (4) of Section 4-10-1, Replacement of the Threading Gear Box.
- (2) Remove the gear after removing the stop ring.
- (3) Remove the belt from the motor pulley. Remove the plate from the frame after removing the fixing screw.
- (4) Remove the pulley while pushing the hook in the direction of the arrow as shown in the figure.
- (5) Remove the motor block from the frame after removing the two fixing screws.
- (6) Loosen the set screw and remove the motor pulley.
- (7) Remove the motor from the motor bracket after removing the two fixing screws.
- (8) Remove the shield case and unsolder the LM-13 Board. Replace the motor with a new one.
- (9) The pole of the motor is as shown in the figure. Solder the plus terminal of the motor to the plus mark of the LM-13 Board.
- (10) Install the shield case to the motor.
- (11) Install the motor to the frame as shown in the figure. Perform steps (4) to (6) in reverse order. Check that the clearance between the motor pulley and the bracket meets the required specification.
- (12) Hook the belt to the pulley and install the pulley on the frame. Be sure that the orientation of the notch of the pulley shaft is as shown in the figure.
- (13) Hook the belt to the motor pulley. Check that the belt is not twisted.
- (14) Adjust as described in Section 4-11.



4-10-3. Replacement of the Threading Belt

Replacement procedure:

- (1) Perform steps (1) to (3) in Section 4-10-2, Replacement of the Threading Motor.
- (2) Clean the new belt and the groove of the pulley with a cloth moistened with cleaning fluid.
- (3) Hook the belt to the pulley and install them to the frame. Be sure that the orientation of the notch of the pulley shaft is as shown in the figure.
- (4) Install the plate to the frame and hook the belt to the Motor pulley. Check that the belt is not twisted.
- (5) Adjust as described in Section 4-11.



4-11. ITEMS TO BE ADJUSTED AFTER MAIN PARTS REPLACEMENT

(Numbers in parenthesis refer to Section Nos.)

Replacement of Threading Ring

Threading Ring Rotation Adjustment (5-3-1) —————> Gear Box Installing Position Adjustment (5-3-2) —————> FR Detector Block Installing Position Adjustment (5-3-4) —————> Pinch Roller Self Alignment Adjustment (5-3-3) —————> Pinch Lever Azimuth Adjustment (5-10) —————> Pinch Lever Pre set Adjustment (5-4-1) —————> Pinch Roller Pre set Adjustment (5-4-2) —————> Leaf Spring Position Adjustment (5-9) —————> F FWD/REW Modes Tape Path Adjustment (7-1) —————> T Correction Guide Slantness Adjustment (7-2) —————> Tape Path Adjustment Around Pinch Roller (7-7) —————> PLAY Mode Tape Path Adjustment (1) (7-4) —————> PLAY Mode Tape Path Adjustment (2) (7-5) —————> REV Mode Tape Path Adjustment (7-6) —————> Video Tracking Adjustment (7-8-1) —————> Time Code Head Adjustment (7-3) —————> CTL PB Head Height/Azimuth/Zenith Adjustments (7-8-3) —————> Audio/CTL Head Position Adjustment (7-8-8) —————> Time Code Head Position Adjustment (7-8-10) —————> Video Tracking Adjustment (check) (7-8-1)

Replacement of Pinch Roller

Pinch Roller Self Alignment Adjustments (5-3-3) —————> Pinch Roller Pre set Adjustment (5-4-2) —————> PLAY Mode Tape Path Adjustment (2) (7-5) —————> REV Mode Tape Path Adjustment (7-6) —————> Tape Path Adjustment Around Pinch Roller (7-7) —————> Video Tracking Adjustment (check)(7-8-1)

Replacement of Take-up Reel Table

Reel Table Height and Vertical Play Adjustments (5-1-2) —————> T Brake Torque Adjustment (6-1-2) —————> REW Brake Torque Adjustment (6-1-3) —————> F FWD/REW Torque Adjustment (6-2) —————> FWD Torque Adjustment (6-3) —————> F FWD/REW Modes Tape Path Adjustment (7-1)

Replacement of Supply Reel Table

Reel Table Height and Vertical Play Adjustments (5-1-2) —————> S Brake Torque Adjustment (6-1-1) —————> F FWD/REW Torque Adjustment (6-2) —————> REV Torque Adjustment (6-4) —————> FF Back Tension Adjustment (6-5) —————> FWD Back Tension Adjustment (6-6) —————> Video Tracking Adjustment (check) (7-8-1)

Replacement of Brake Band

FF Back Tension Adjustment (6-5) —————> FWD Back Tension Adjustment (6-6)

Replacement of Capstan Motor

Pinch Lever Azimuth Adjustment (5-10) —————> Pinch Roller Self Alignment Adjustment (5-3-3) —————> Capstan Search Speed Adjustment —————> Capstan FWD/REV Detector Adjustment —————> Capstan Free Speed Adjustment —————> Capstan Stop Servo Adjustment —————> PLAY Mode Tape Path Adjustment (2) (7-5) —————> REV Mode Tape Path Adjustment (7-6) —————> Tape Path Adjustment Around Pinch Roller (7-7) —————> Video Tracking Adjustment (check)(7-8-1)

Replacement of Threading Gear Box, threading Motor and Threading Belt
Gear Box Installing Position Adjustment (5-3-2)

Replacement of Reel Motor

FWD Torque Adjustment (6-3) ———> REV Torque Adjustment (6-4)

Replacement of CTL PB Head

CTL PB Head Height/AZimuth/Zenith Adjustments (7-8-3) ———> Video Tracking Adjustment (check) (7-8-1)

Replacement of Audio/CTL Head

Audio Head Height Adjustment (7-8-4) ———> Audio Head Azimuth Adjustment (7-8-6) ———>
Video Tracking Adjustment (7-8-1) ———> Audio Head Height Adjustment (7-8-4) ———> Audio
Head Azimuth Adjustment (7-8-6) ———> Audio Head Phase Adjustment (7-8-7) ———> Audio/CTL
Head Position Adjustment (7-8-8) ———> Time Code Head Position Adjustment (7-8-10) ———>
Audio System Alignment (all of Section 10)

Replacement of Drum Assembly

Tracking Adjustment (7-8) ———> F FWD/REW Modes Tape Path Adjustment (7-1) ———> PLAY Mode Tape
Path Adjustment (2) (7-5) ———> REV Mode Tape Path Adjustment (7-6) ———> Video Head
Dihedral Adjustment (7-9) ———> Drum AFC Level Adjustment ———> Drum AFC Transient Adjustment
———> Switching Position Adjustment

Replacement of Upper Drum Assembly

Replacement of Upper Drum (4-1) ———> Tracking Adjustment (7-8) ———> F FWD/REW Modes Tape Path
Adjustment (7-1) ———> PLAY Mode Tape Path Adjustment (2) (7-5) ———> REV Mode Tape Path
Adjustment (7-6) ———> Video Head Dihedral Adjustment (7-9) ———> PB RF Amplifier Adjustment

SECTION 5

LINK AND DRIVE SYSTEM ALIGNMENT

5-1. REEL TABLE SYSTEM ADJUSTMENT

5-1-1. Cassette Holder Position Adjustment

Tool: Reel table height check base jig
Thickness gauge
L-shaped hexagonal wrench
(across flat has 1.27 mm)

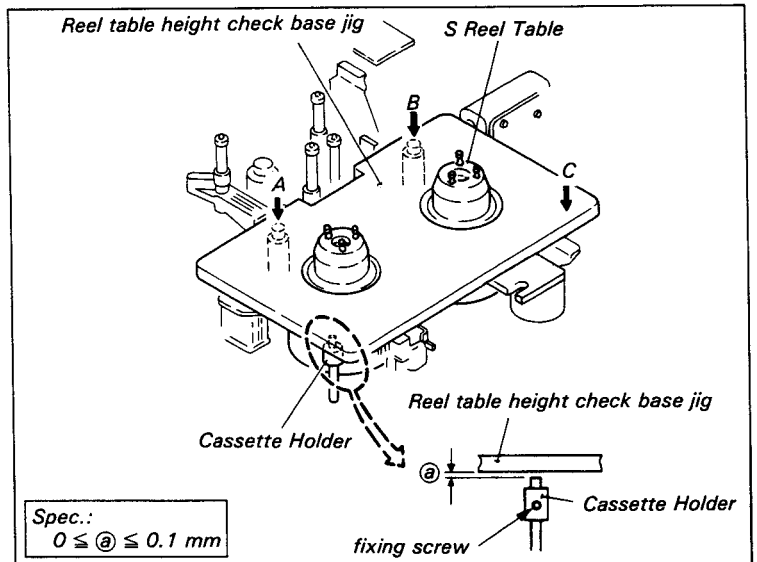
Mode: EJECT completion

Check procedure:

- (1) While lightly pushing the Reel Table Height Check Base Jig marked (A), (B) and (C) toward the chassis, check that the clearance between the base jig and the cassette holder meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the Cassette Holder to meet the required specification.



5-1-2. Reel Table Height and Vertical Play Adjustments

- . The height of the reel table is the reference for the tape threading system and the tape path system. This Adjustment should be performed very carefully.

Tool: Reel table height check base jig
Reel table height check jig
Slide vernier callipers or equivalent

Mode: EJECT completion

Check procedure:

- (1) The probes of the Reel Table Height Check Jig marked "SO" and "TO" can slide over the reel table, leaving a clearance between the jig and the reel table. The probes marked "SX" and "TX" meet the flange and cannot slide over the reel table.
 - . Use the "SO" and "SX" probes for the Supply Reel Table.
 - . Use the "TO" and "TX" probes for the Take-up Reel Table.
- (2) After tighten the fixing screw of the top of the reel table, push up and press down the reel table. Check that the vertical play meets the required specification.

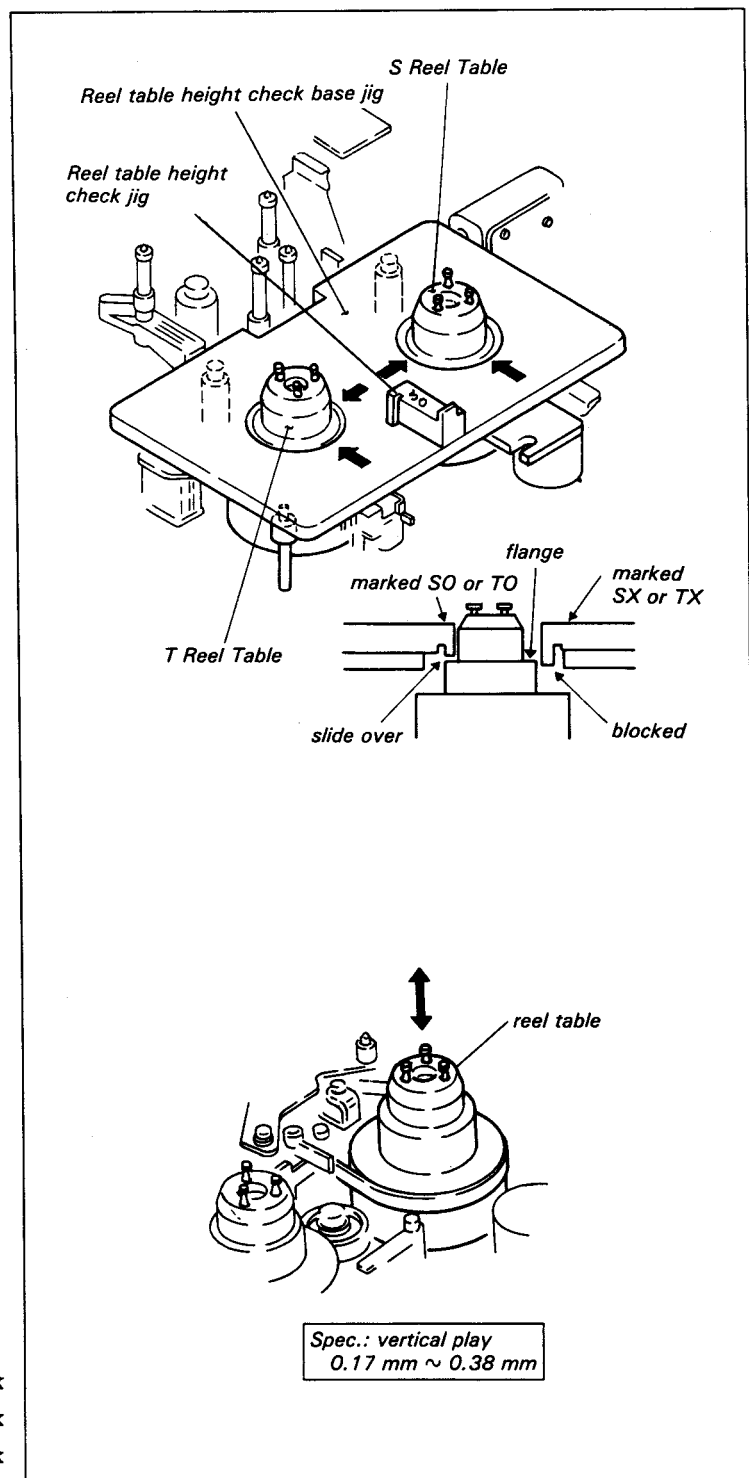
Adjustment procedure:

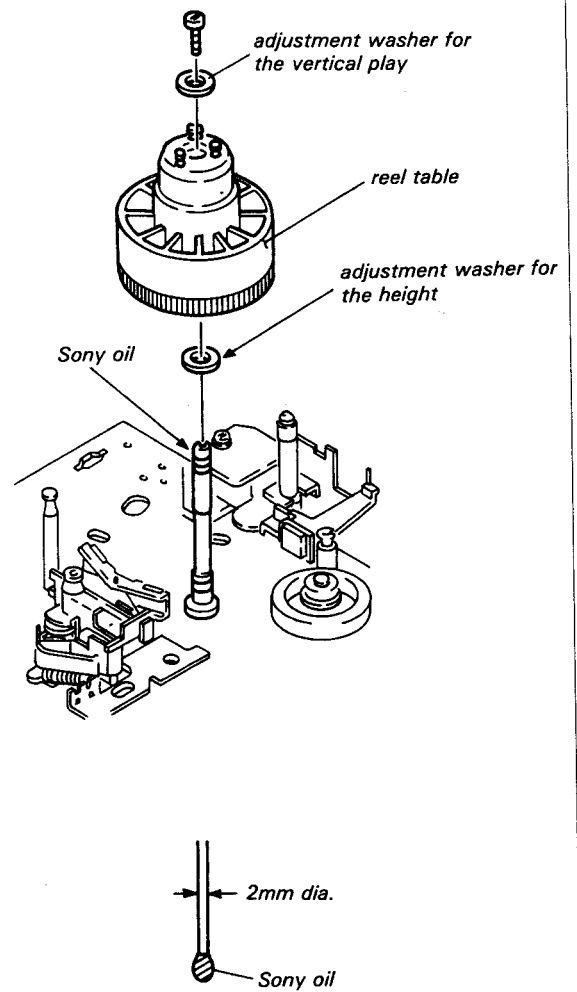
- (1) Place the washer under the reel table and adjust the height of the reel table.
- (2) Place the washer on the reel table and adjust the vertical play of the reel table.

NOTE :When the reel table is removed and its height is adjusted with a washer, drop a drop of Sony oil on the reel shaft. (A drop of Sony oil is the amount that is scooped by a 2 mm dia. twing as shown in the figure.)

. Adjustment poly-slider washer:

3-645-567-11	6 mm dia.	0.05 mm thick
3-701-444-01	6 mm dia.	0.13 mm thick
3-701-444-11	6 mm dia.	0.25 mm thick
3-701-444-21	6 mm dia.	0.5 mm thick





5-2. T DRAWER ARM ADJUSTMENT

5-2-1. T Drawer Arm EJECT Position Adjustment

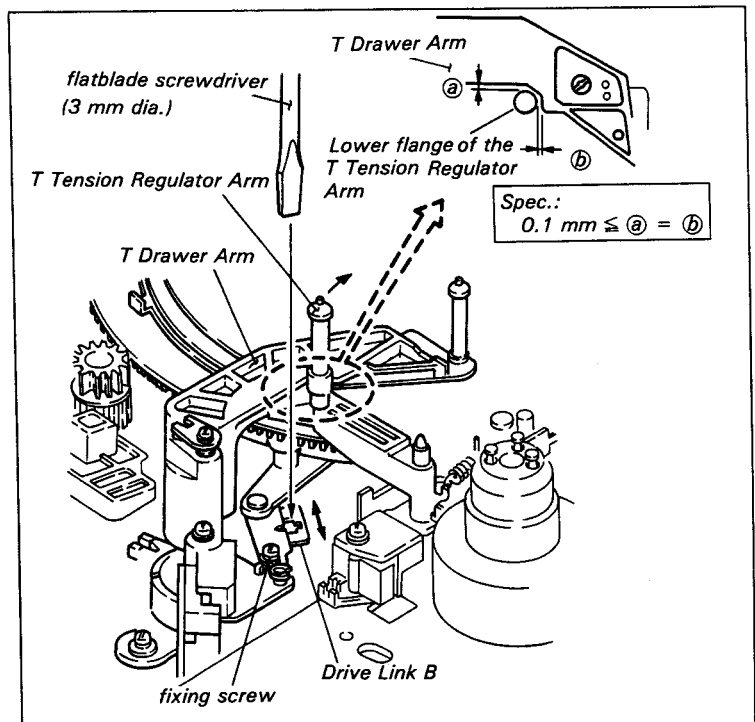
Mode: Put the unit into the FR-STOP mode without a cassette tape. And then put the unit into the EJECT completion mode.

Check procedure:

- (1) Push the T Tension Regulator Arm in the direction of the arrow as far as it will go, and remove the finger gently.
- (2) Check that the clearance between the lower flange of the T Tension Regulator Arm and the T Drawer Arm meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the Drive Link (B) Ass'y with a flatblade screwdriver (3mm dia.) to meet the required specification.



5-2-2. Unthread-end Switch Position Adjustment

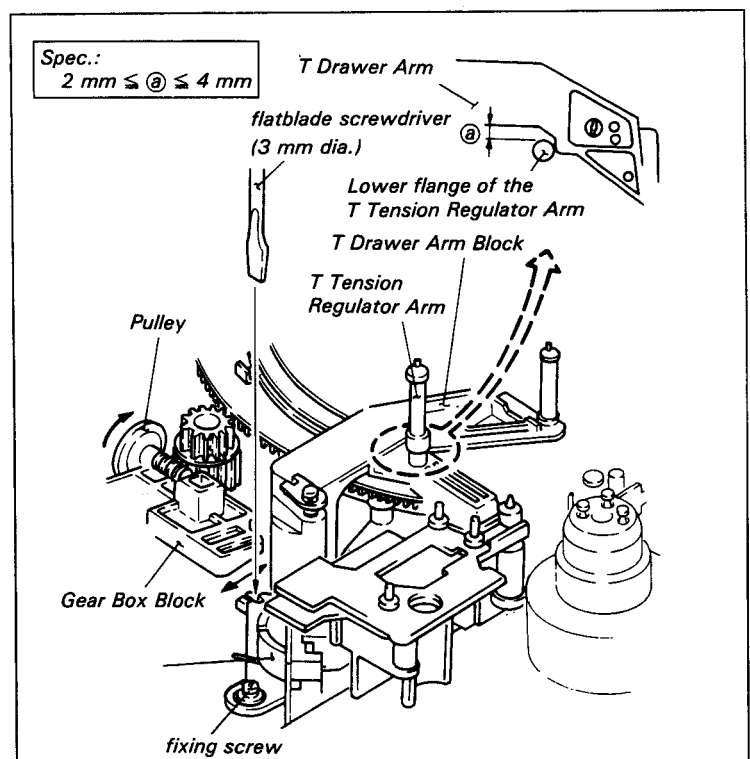
Tool: Black vinyl tape
(1 cm x 1.5 cm)

Preparation:

- (1) Put the unit into the FR-STOP mode and turn the power OFF.
- (2) Remove the Pinch Press Lever Spring from the bracket of the FR Detector Block with tweezers.
- (3) Remove the FR Detector Block and cover the D2 photointerrupter (FR-UNTHREAD END Detector) with the black vinyl tape. (The FR Detector is put into the FR-STOP mode.)

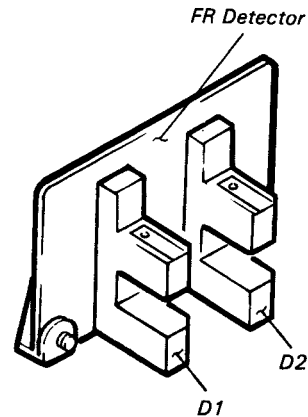
Check procedure:

- (1) Turn the power ON and rotate the pulley of Gear Box Block in the clockwise direction by hand.
- (2) When the T Brake Solenoid is energized (click sound heard), check that the positional relationship of the T Drawer Arm and the T Tension Regulator Arm meet the specification as shown in the figure.



Adjustment procedure:

- (1) Adjust the position of the Photointerrupter Holder with a flatblade screwdriver (3mm dia.) to meet the required specification.
- (2) Turn the power OFF and install FR Detector Block after peeling off the black vinyl tape.
- (3) Perform Section 5-3-4, FR Detector Block Installing Position Adjustment.
- (4) Hook the Pinch Press Lever Spring to the bracket of the FR Detector Block with tweezers.



5-3. THREADING SYSTEM ADJUSTMENT

5-3-1. Threading Ring Rotation Adjustment

- . This adjustment is required only when the Threading Ring is replaced or removed.
- . If the Threading Ring is adjusted to have a narrower clearance, the ring rotation becomes sluggish. If adjusted to have a wider clearance, tape run during threading, FWD, and REV modes will be unstable.

Mode: Check mode: EJECT completion/
Threading/Unthreading
Adjustment mode: EJECT completion

Check procedure:

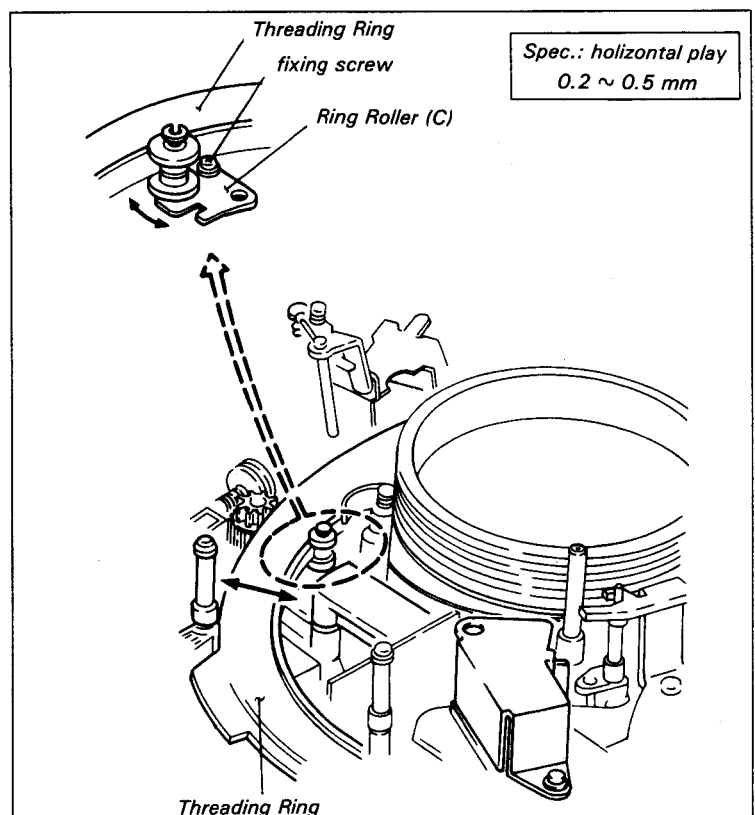
- (1) Put the unit into the EJECT completion mode. Check that the horizontal play meets the required specification when the Threading Ring is pushed in the direction of the arrow.
- (2) Check that the rotation of the Threading Ring during the Threading and Unthreading modes is smooth.

Adjustment procedure:

- (1) Put the unit into the EJECT completion mode.
- (2) Adjust the position of the Ring Roller (C) to meet the required specification.

Reference:

- . Insert a 0.3 mm thick piece of paper between the Threading Ring and the Ring Roller (C).
- . Three pages of this service manual are 0.3 mm thick.



5-3-2. Gear Box Installing Position Adjustment

. It is required that Section 5-3-1, Threading Ring Rotation Adjustment is correct before initiating this adjustment.

Mode: Put the unit into the EJECT completion mode. Turn the pulley of the Gear Box 1/2 to 1 turn in the direction of arrow C.

Check procedure:

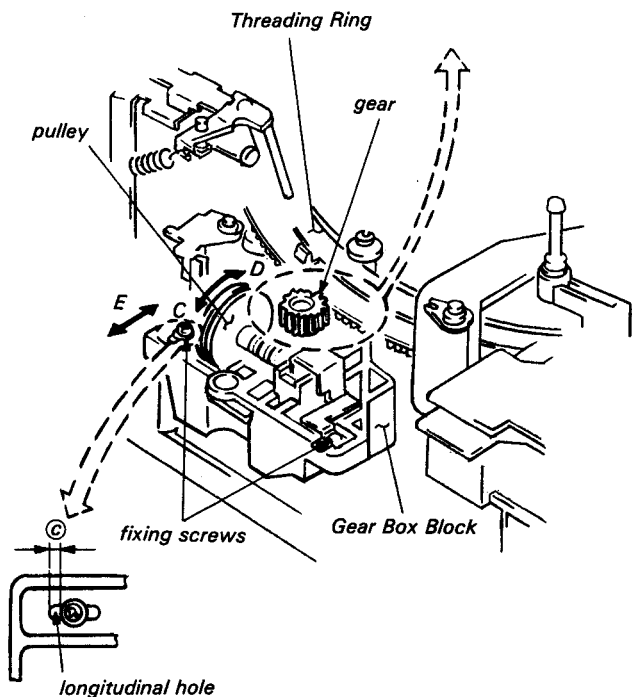
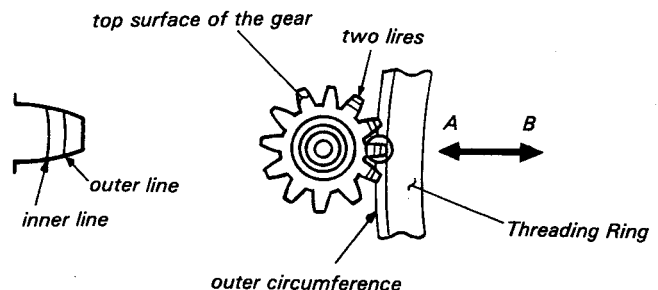
- (1) Put the unit into the EJECT completion mode and then turn the pulley of the Gear Box 1/2 to 1 turn in the direction of arrow C.
- (2) Mark two lines on the top surface of the gear with a black felt tip pen. (Two lines are easy to see during the adjustment.)
- (3) Turn the pulley in the direction of arrow C or D until one of the lines is roughly parallel to the outer circumference of the Threading Ring.
- (4) Check that the relationship between the outer circumference of the Threading Ring and the Gear meets the required specification.

Adjustment procedure:

- (1) Open the DM-72 Board.
- (2) Turn the pulley in the direction of arrow C or D until one of the lines is roughly parallel to the outer circumference of the Threading Ring.
- (3) Move the Gear Box in the direction of arrow E to meet the required specification.
- (4) Check that Section 5-3-1, Threading Ring Rotation Adjustment meets the required specification.
- (5) Check that © meets the required specification at the longitudinal hole of the gear block as shown in the figure.

Spec.:

(1) When pushing the Threading Ring in the direction of arrow A or B, the outer circumference of the Threading Ring is between two lines of the gear.



Spec.:

$0.1 \text{ mm} \leq \text{©} \leq 1.5 \text{ mm}$

5-3-3. Pinch Roller Self Alignment Adjustment

- . If this adjustment is incorrect, the position and the slantness of the Pinch Roller will not be correct when the Pinch Roller is pressed against the Capstan Shaft. Incorrect adjustment will cause a tape to be damaged.

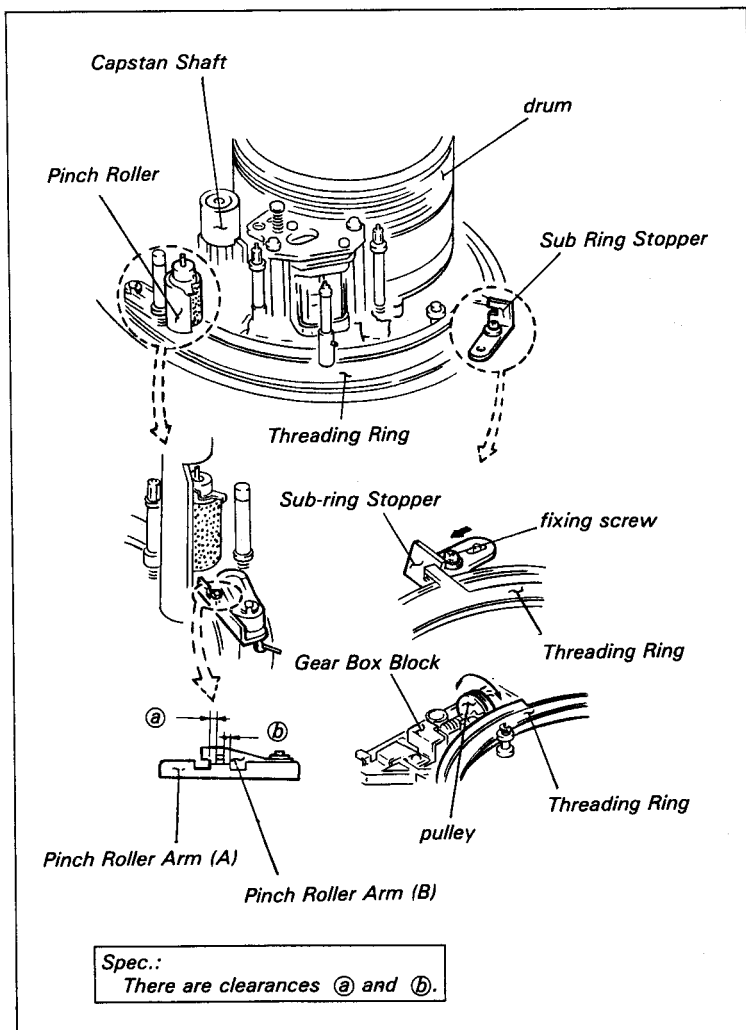
Mode: PLAY mode without a cassette tape

Check procedure:

- (1) Put the unit into the PLAY mode without a cassette tape.
- (2) Check that the relationship of Pinch Roller Arm (A) and Pinch Roller Arm (B) meets the required specification.

Adjustment procedure:

- (1) Put the unit into the PLAY mode without a cassette tape.
- (2) Loosen the fixing screw in the Sub-ring Stopper.
- (3) Turn the pulley of the Gear Box Block in the direction of the arrow to meet the required specification.
- (4) Push the Sub-ring Stopper gently in the direction of the arrow and tighten the fixing screw.
- (5) Put the unit into the EJECT completion mode and then perform the check procedure.



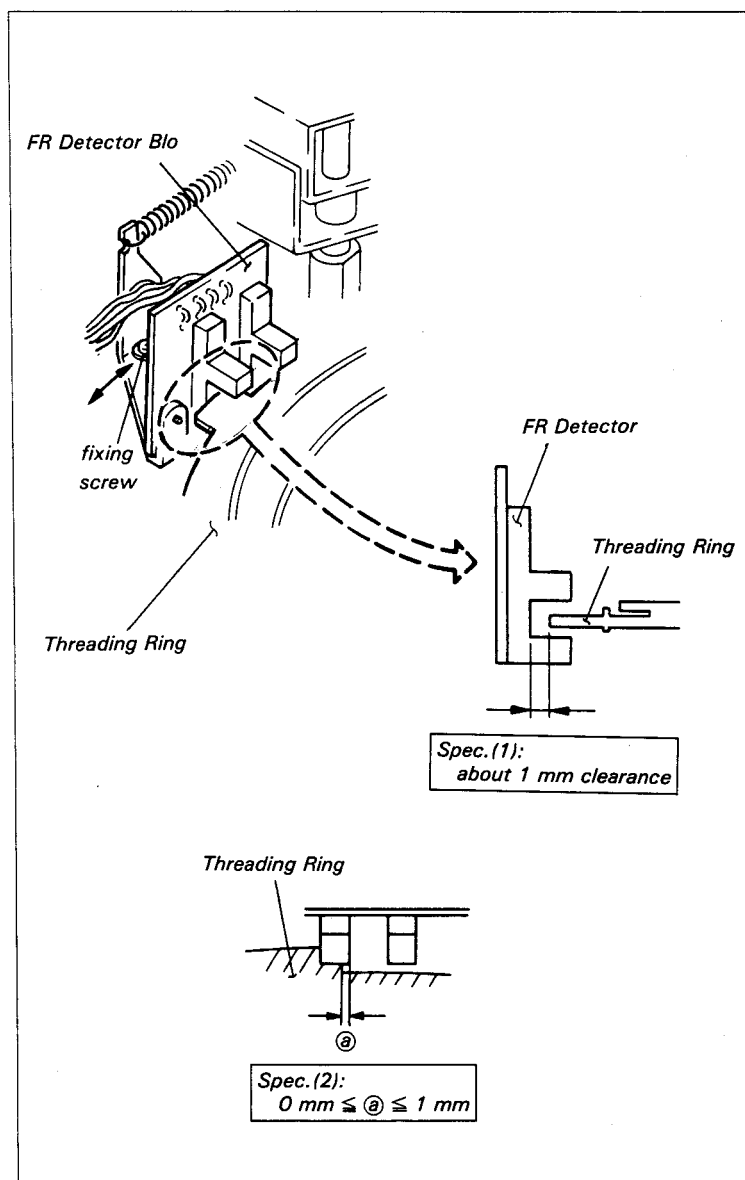
5-3-4. FR Detector Block Installing Position Adjustment

. It is required that the Section 5-3-1, Threading Ring Rotation Adjustment is correct before initiating this adjustment.

Mode: Threading completion mode

Adjustment procedure:

- (1) Put the unit into the Threading completion mode and turn the power OFF.
- (2) Remove the Pinch Press Lever Spring from the bracket of the FR Detector Block with tweezers.
- (3) Loosen the fixing screw of the FR Detector block 1/4 to 1/2 turn.
- (4) Press the FR Detector Block against the Threading Ring, and reverse it about 1mm. (Do not reverse it more than 1.5mm) (Spec.1)
- (5) Move the FR Detector Block in the direction of the arrow to meet the required specification 2.
- (6) Check that the clearance meets the required specification 1.
- (7) Hook the Pinch Press Lever Spring to the bracket of the FR Detector Block with tweezers.



5-4. PINCH LEVER BLOCK ADJUSTMENT

5-4-1. Pinch Lever Preset Adjustment

. It is required that Section 5-3-1, Threading Ring Rotation Adjustment and Section 5-3-3, Pinch Roller Self Alignment Adjustment are correct before initiating this adjustment.

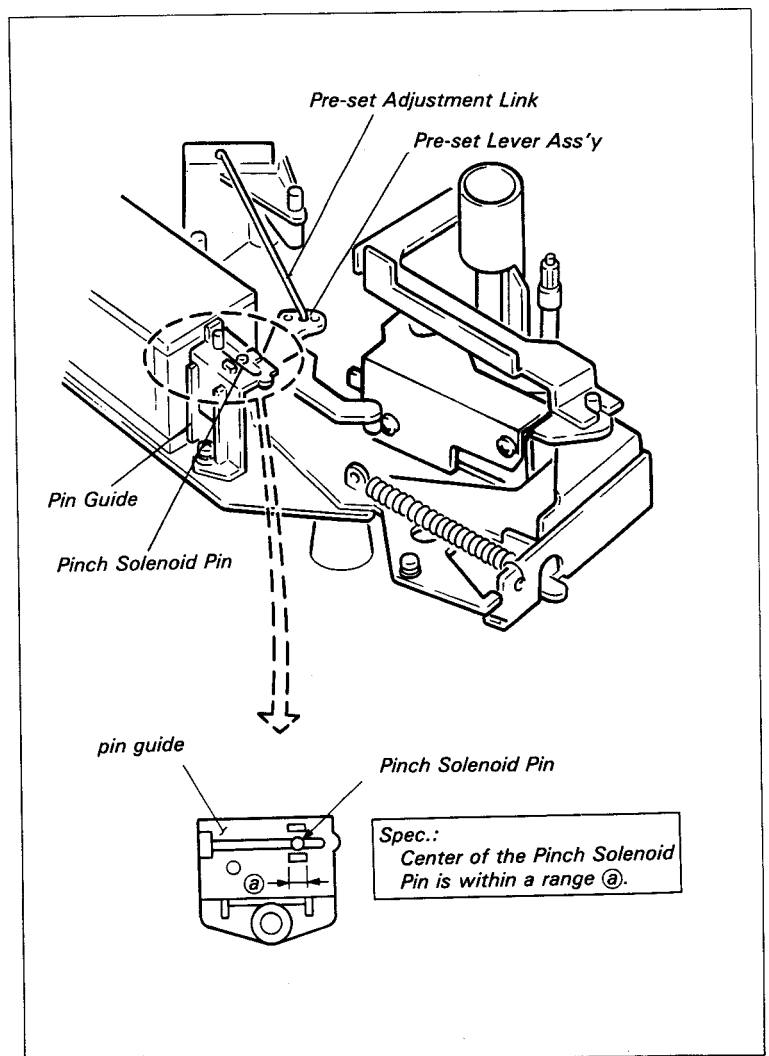
Mode: Turn the power OFF in the PLAY mode

Check procedure:

- (1) Open the RP-40B Board.
- (2) Put the unit into the PLAY mode and turn the power OFF. Check that the position of the Pinch Solenoid Pin meets the required specification.
- (3) Turn the power ON and press the PLAY button. After unthreading is complete, check as described in step (1).

Adjustment procedure:

- (1) Adjust the position of the Pinch Solenoid to meet the required specification, referring to Section 5-7-4, Pinch Solenoid Installing Position Adjustment.
- (2) If the specification in Step (1) cannot be obtained, adjust the position of the Sub-ring Stopper to meet the required specification, referring to Section 5-3-3, Pinch Roller Self Alignment Adjustment.
- (3) If the specification in Steps (1) and (2) cannot be obtained, insert the Pinch Lever Preset Adjustment Link into the appropriate hole of the Preset Lever Ass'y to meet the required specification. Perform Steps (1) and (2) again.



5-4-2. Pinch Roller Preset Adjustment

It is required that Section 5-3-1, Threading Ring Rotation Adjustment and Section 5-3-3, Pinch Roller Self Alignment Adjustment are correct before initiating this adjustment.

Tool: Thickness gauge

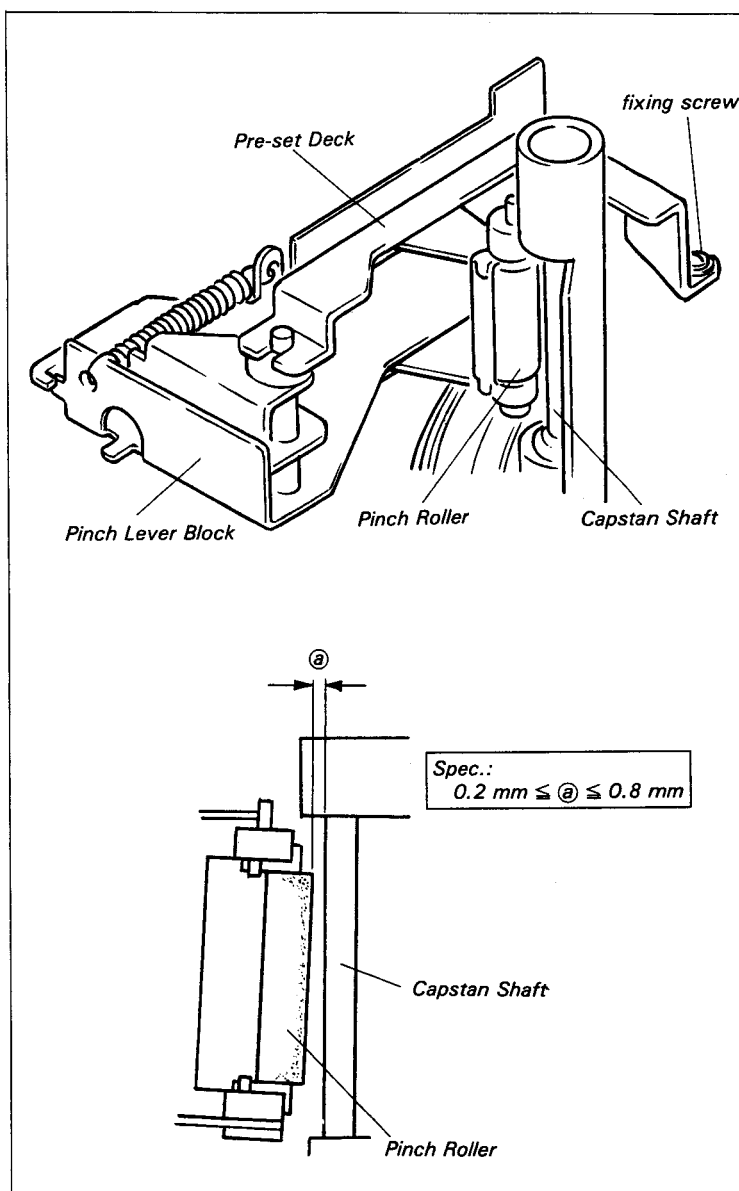
Mode: PLAY mode

Check procedure:

- (1) Check that the clearance between the Pinch Roller and Capstan Shaft meets the required specification

Adjustment procedure:

- (1) Adjust the position of the Pre-set Deck to meet the required specification.
- (2) Repeat the Threading/Unthreading modes two or three times and check that it meet the required specification.



5-4-3. Pinch Solenoid Block Position Adjustment

Tool: Thickness gauge

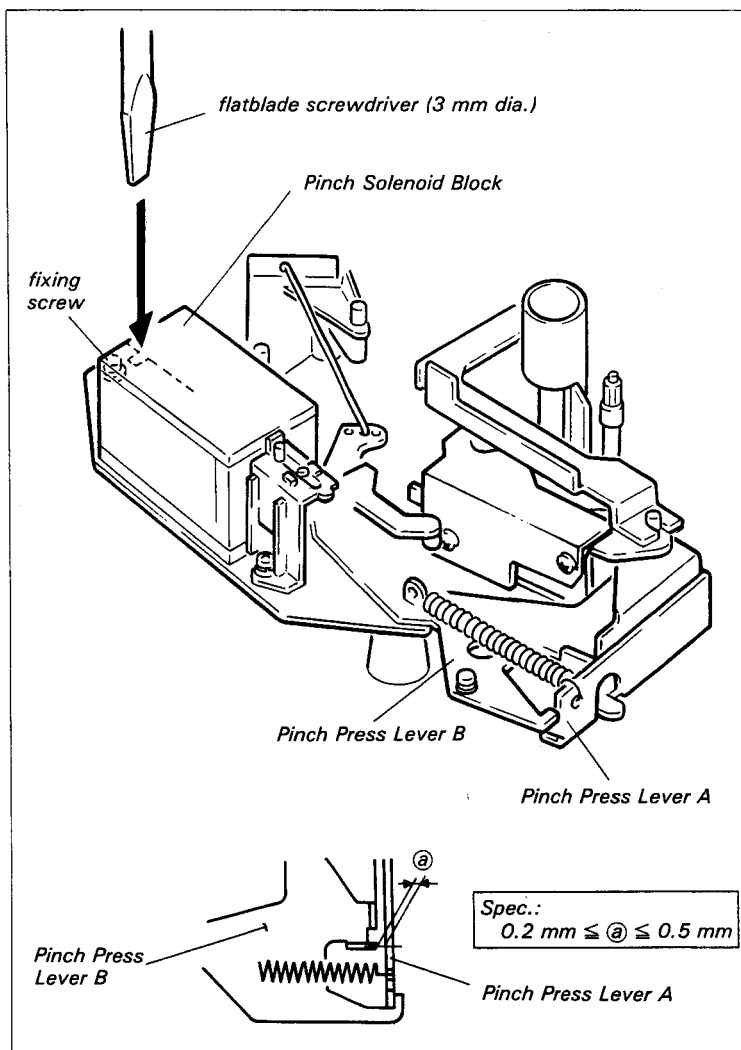
Mode: PLAY mode with a cassette tape

Check procedure:

- (1) Insert a cassette tape and put the unit into the PLAY mode.
- (2) Check that the clearance between Pinch Press Lever A and B meets the required specification.
- (3) Repeat the Unthreading/Threading modes two or three times and check as described in step (2).

Adjustment procedure:

- (1) Put the unit into the PLAY mode. Adjust the position of the Pinch Solenoid Block with a flatblade screwdriver (3 mm dia.) to meet the required specification.
- (2) Perform the check procedures (2) and (3).



5-5. T TAPE SENSOR POSITION ADJUSTMENT

. There are two adjustments in this section. The first is the height adjustment and the second is the adjustment of the clearance between the tape and LED.

Tool: Thickness gauge

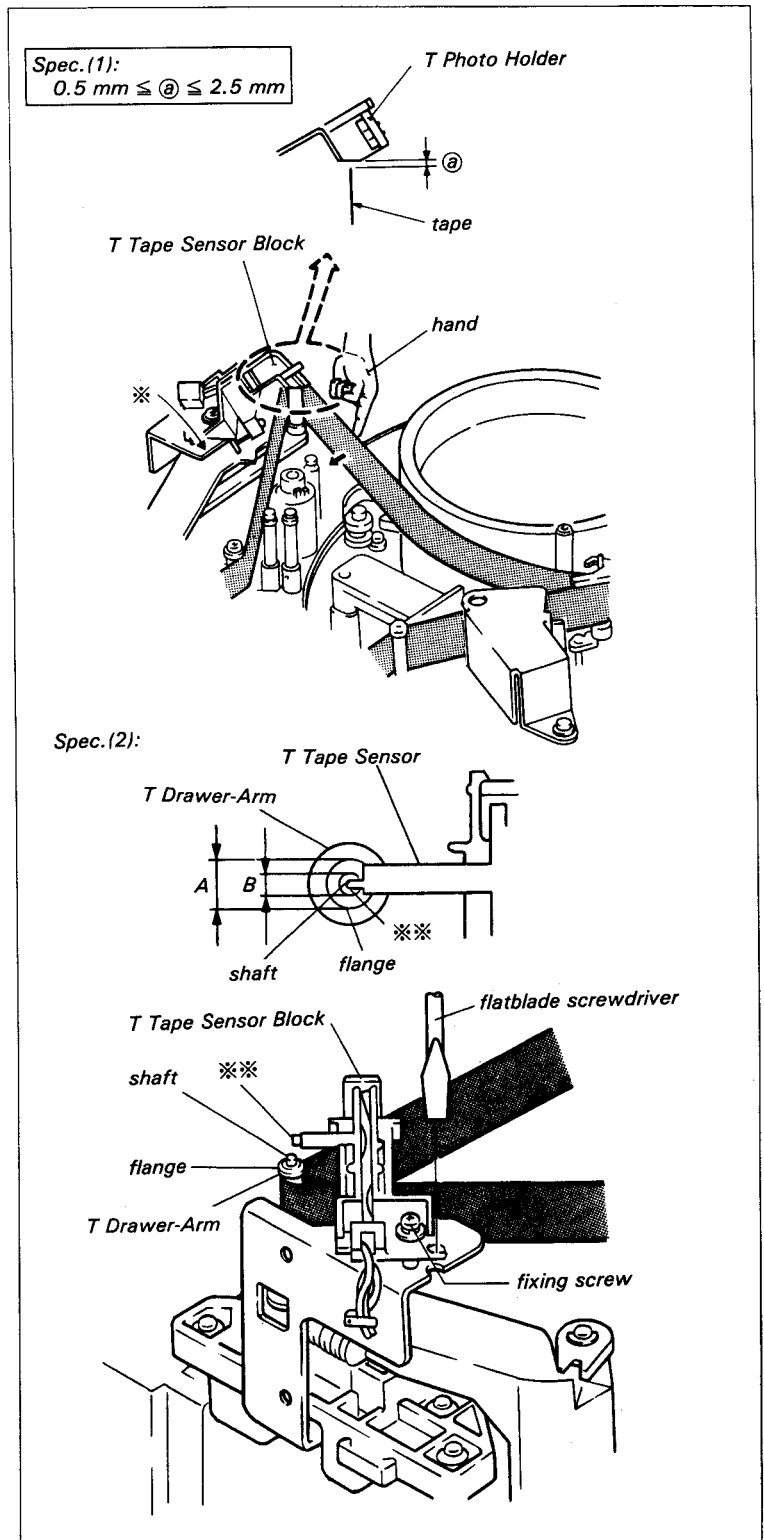
Mode: PLAY and FR-STOP modes with a cassette tape

Check procedure:

- (1) Insert the cassette tape and put the unit into the FR-STOP mode. Push the tape by hand as shown in the figure. Check that the clearance between top edge of the tape and bottom side of the T Photo Holder Block (black plastic) meets the required specification. (Spec. (1))
- (2) Put the unit into the PLAY mode.
- (3) As viewed from the top of the unit, check that the ※※ of the T Tape Sensor Block is above the upper flange of the T Drawer Arm (within the range "A"). (Spec. (2))

Adjustment procedure:

- (1) Bend the ※ with a pliers to meet the required specification (1). Perform check procedures (2) and (3).
- (2) Loosen the fixing screw of the T Tape Sensor Block 1/2 to 1 turn.
- (3) As viewed from the top of the unit in the PLAY mode, adjust the position of the T Tape Sensor Block with a flatblade screwdriver so that the ※※ of the T Tape Sensor Block is above the shaft of the T Drawer Arm (within the range "B").
- (4) Check that it meets the required specification (1).



5-6. TENSION ARM SYSTEM ADJUSTMENT

5-6-1. S Drawer Roller Block Limiter Adjustment

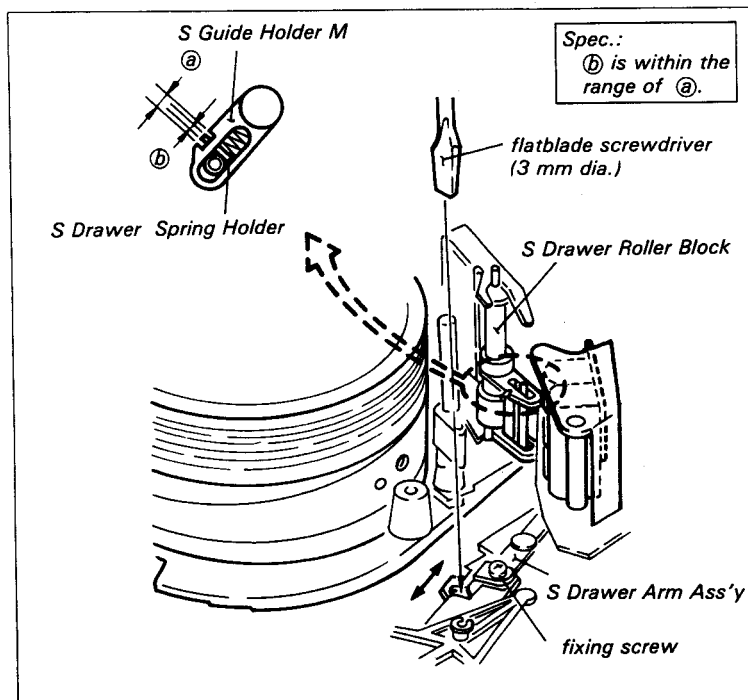
Mode: FR-STOP mode

Check procedure:

- (1) Check that " b " of the S Drawer Spring Holder in the S Drawer Roller Block fits into notch " a " of the S Guide Holder M.

Adjustment procedure:

- (1) Loosen the fixing screw of the S Drawer Arm Ass'y 1/4 to 1/2 turn.
- (2) Adjust the position of the S Drawer Arm Ass'y with a flatblade screwdriver (3 mm dia.) to meet the required specification.



5-6-2. T Tension Regulator Operating Position Adjustment

Mode: FR-STOP mode

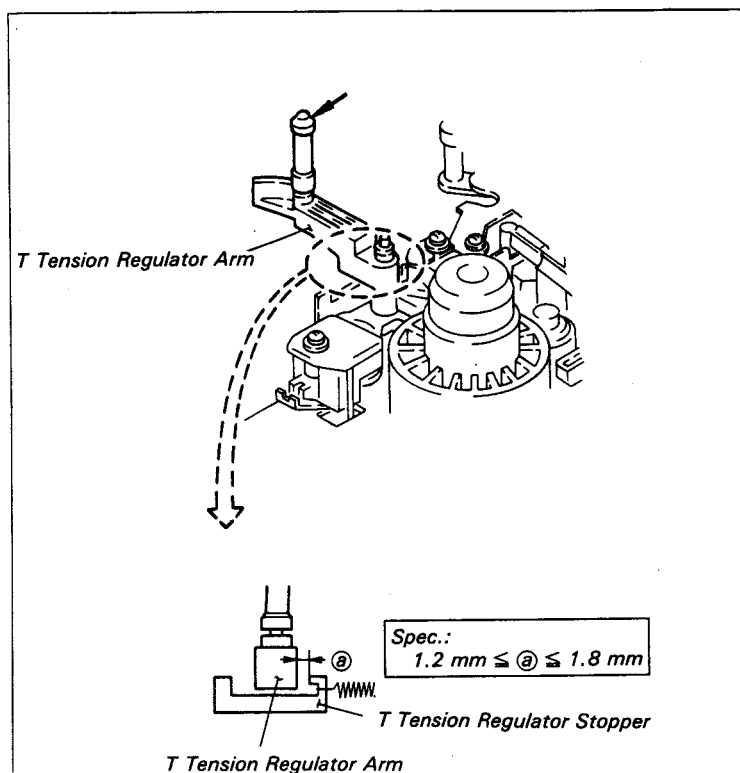
Tool: Thickness gauge

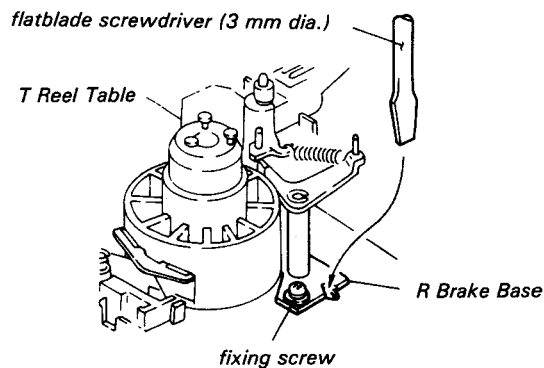
Check procedure:

- (1) Push the T Tension Regulator Arm in the direction of the arrow and remove the finger gently.
- (2) Check that the clearance between the T Tension Regulator Arm and the stopper meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw of the R Brake Base 1/4 to 1/2 turn.
- (2) Adjust the position of the R Brake Base with a flatblade screwdriver (3mm dia.) to meet the required specification.





5-6-3. S Tension Regulator Operating Position Adjustment

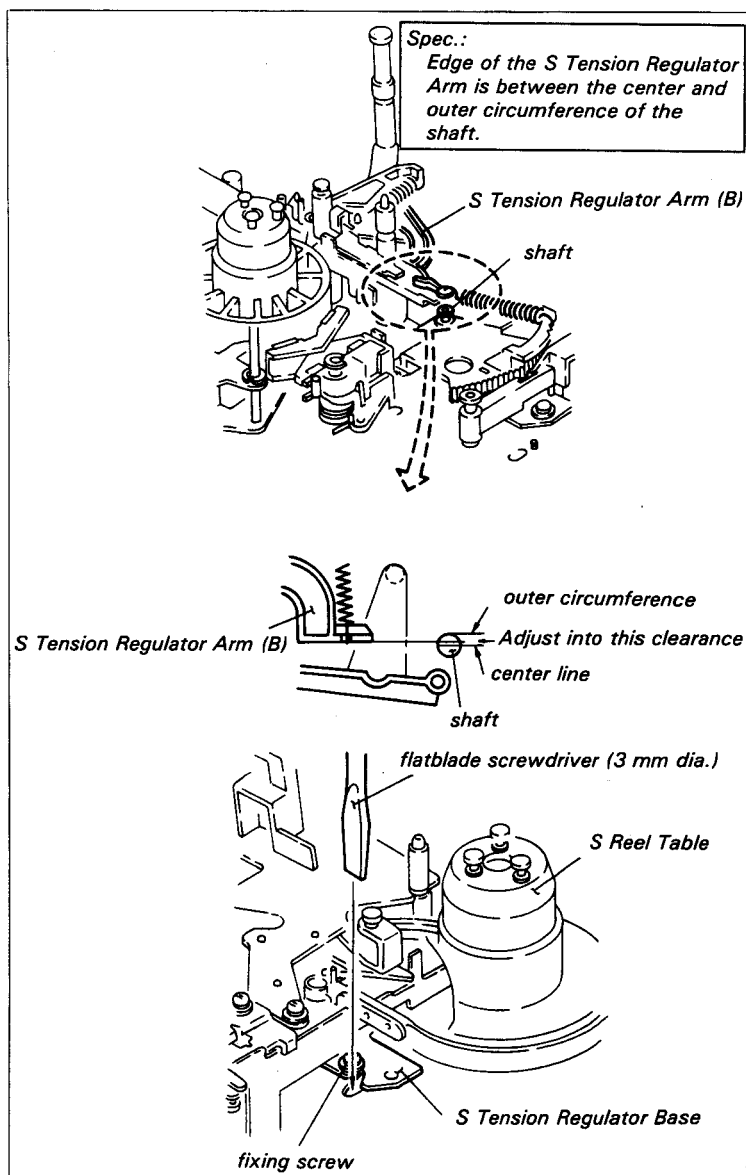
Mode: F-FWD mode

Check procedure:

- (1) Put the unit into the FF mode without a cassette tape.
- (2) Check that the edge of the S Tension Regulator Arm (B) meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw of the S Tension Regulator Base 1/4 to 1/2 turn.
- (2) Adjust the position of the S Tension Regulator Base to meet the required specification.



5-6-4. Tension Detector Position Adjustment

Tool: DC voltmeter

Mode: FWD / REV mode

Preparation:

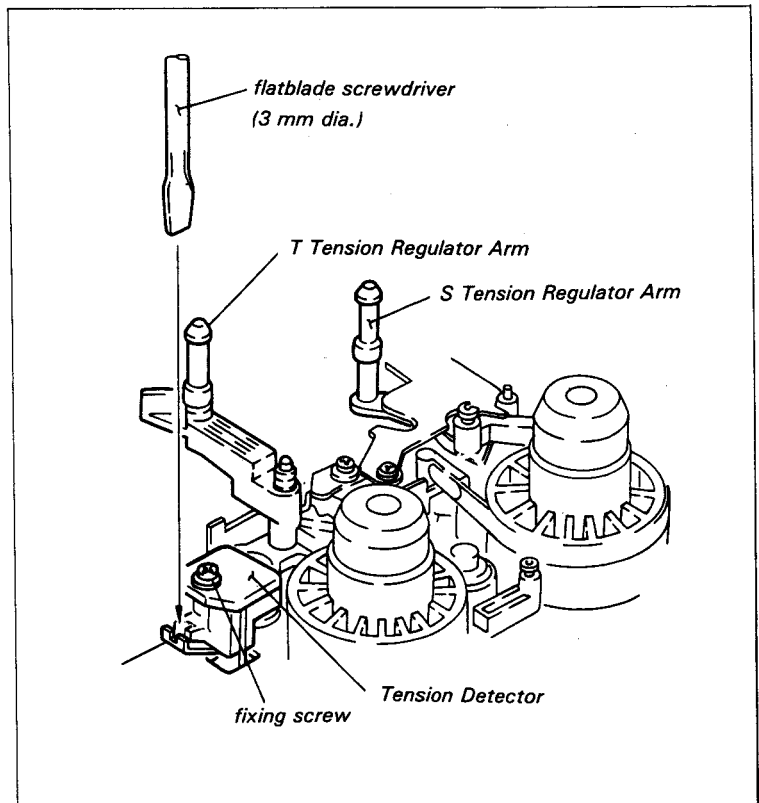
- (1) Connect the dc voltmeter to TP1 on the SY-141B Board.

Check procedure:

- (1) Put the unit into the FWD mode without a cassette tape.
- (2) Push the T Tension Regulator Arm to the right with a hand as far as it will go. Check that the dc voltage is more than 8V.
- (3) Push the T Tension Regulator Arm to the left with a hand as far as it will go. Check that the dc voltage is less than 2.5V.
- (4) Put the unit into the REV mode.
- (5) Push the S Tension Regulator to the right with a hand as far as it will go. Check that the dc voltage is less than 2.5 V.
- (6) Push the S Tension Regulator to the left with a hand as far as it will go. Check that the dc voltage is more than 8 V.

Adjustment procedure:

- (1) Remove the FR Detector Block from the unit.
- (2) Loosen the fixing screw of the Tension Detector 1/4 to 1/2 turn.
- (3) Insert a flatblade screwdriver (3 mm dia) in the notch and adjust the position of the Tension Detector to meet the required specification.
- (4) After adjustment, install the FR Detector.



5-6-5. T Tension Regulator Arm Height Adjustment

Tool: L-shaped hexagonal wrench
(across flat has 1.5 mm)

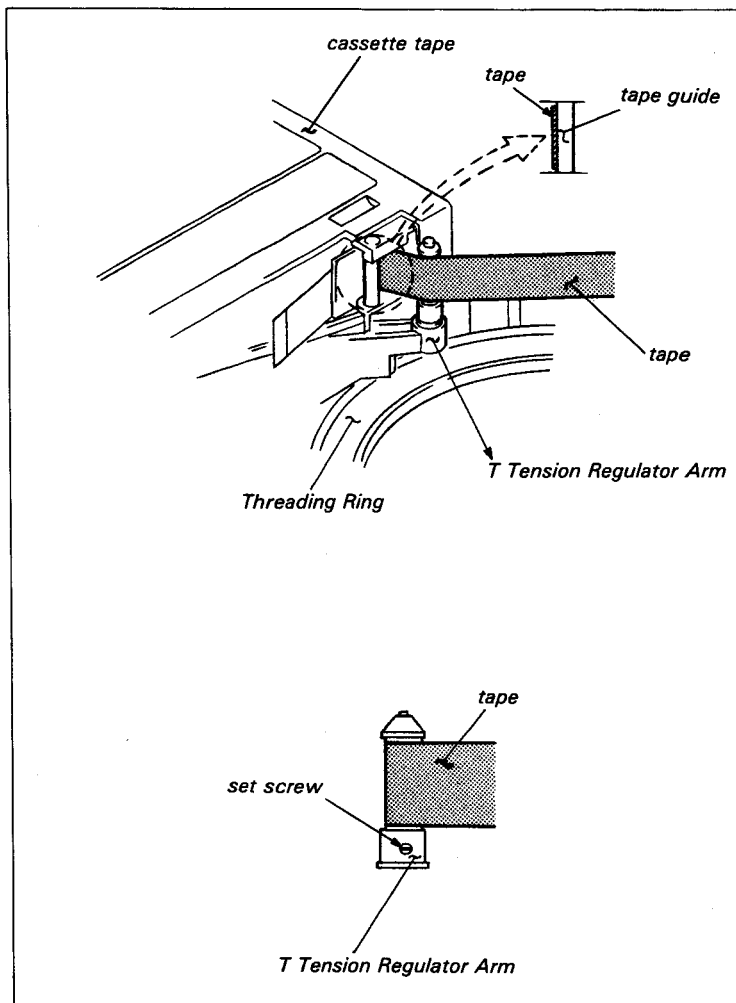
Mode: PLAY / F FWD mode with a cassette tape

Check procedure:

- (1) Insert a cassette tape and put the unit into the PLAY mode.
- (2) Check that the tape runs in the middle of the tape guide in the cassette.
- (3) Check that the tape runs in the middle of the T Tension Regulator Arm Guide.
- (4) Put the unit into the F FWD mode.
- (5) Check as described in steps (2) and (3).

Adjustment procedure:

- (1) Loosen the set screw at the lower flange of the T Tension Regulator Arm.
- (2) Adjust the height of the T Tension Regulator Arm to meet the required specification.



5-7. SOLENOID SYSTEM ADJUSTMENT

5-7-1. Search Solenoid Installing Position Adjustment

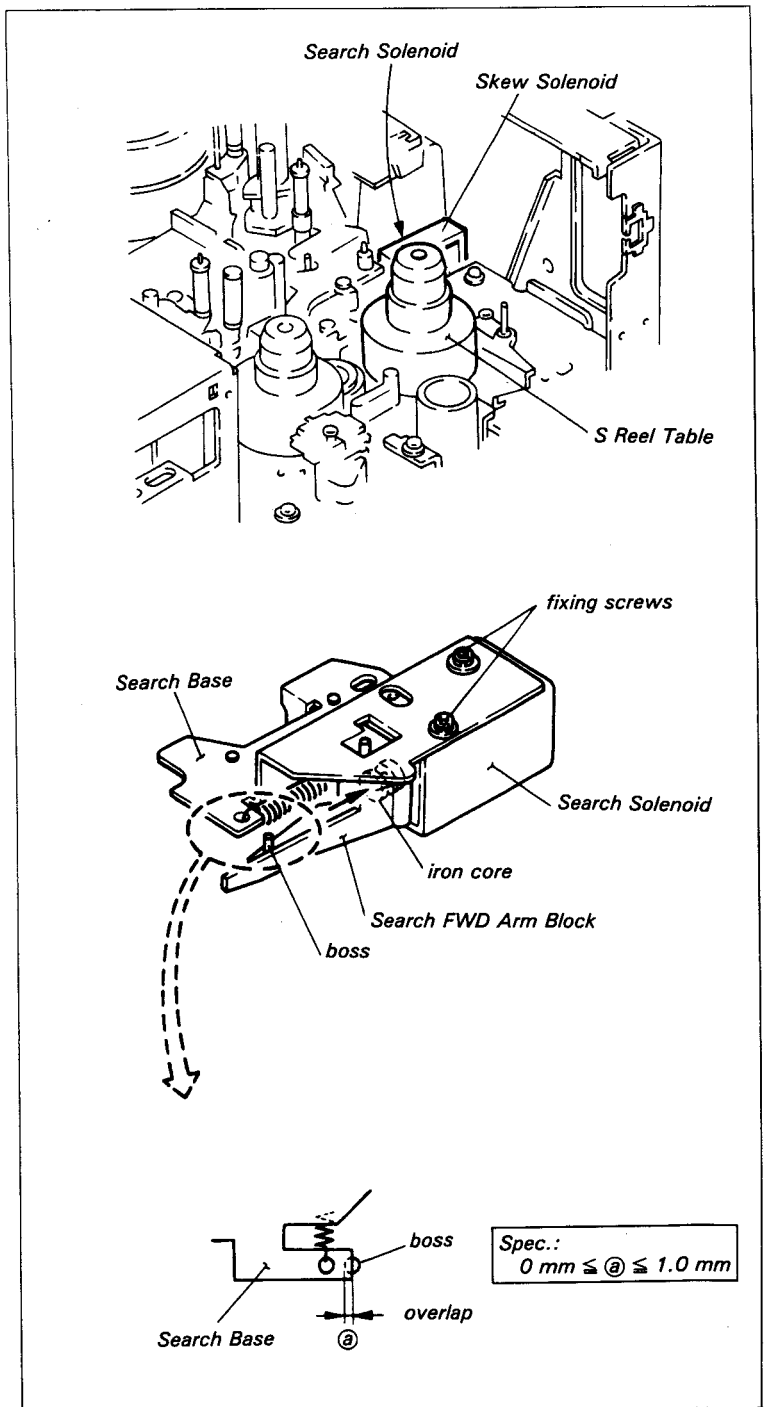
. This adjustment is required only when the search solenoid is replaced or removed.

Preparation:

- (1) Remove the Search Solenoid Block from the chassis.

Adjustment procedure:

- (1) Move the iron core into the fully energized position (as far as it will go in the direction of the arrow). Adjust the position of the Search Solenoid so that the overlap of the Search FWD Arm Boss and the Search Base meets the required specification.



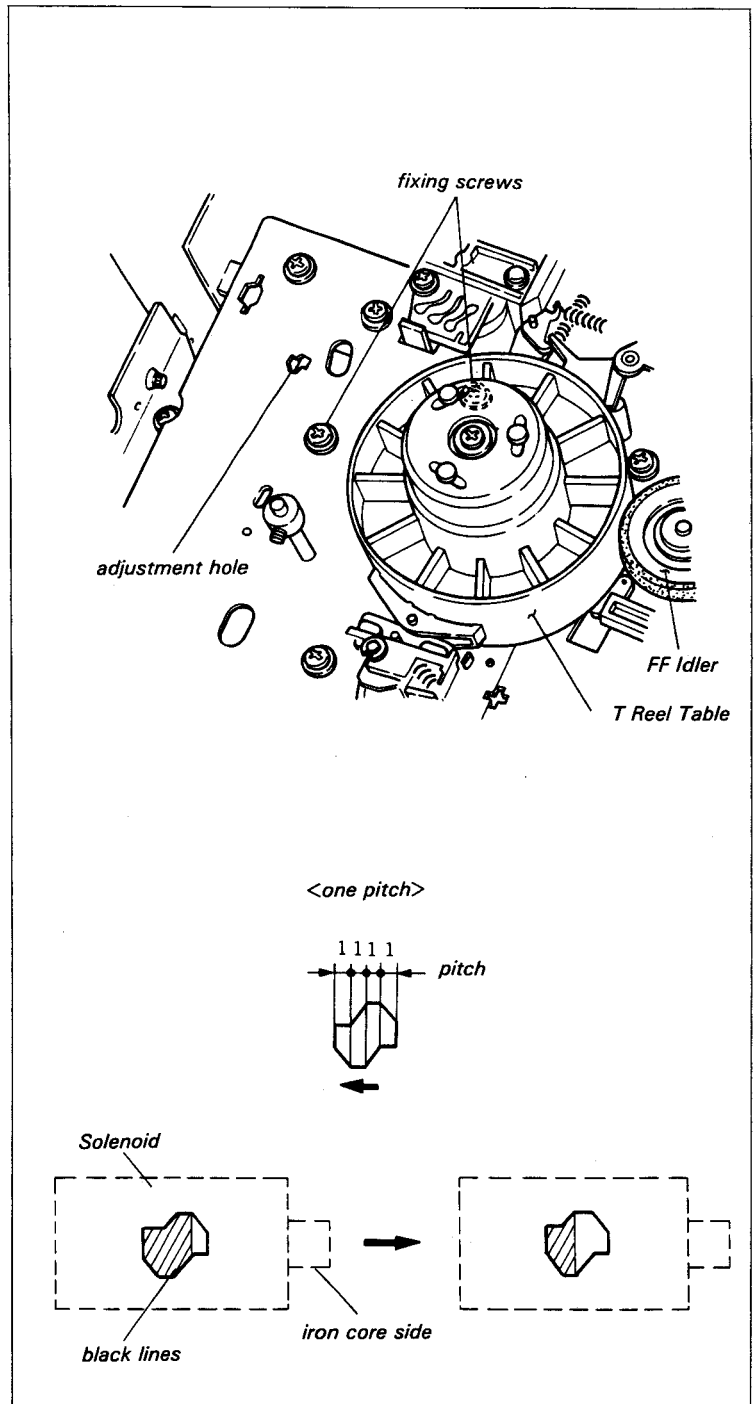
5-7-2. T Idler Solenoid Position Adjustment

. This adjustment is performed when T Idler Solenoid is replaced or removed, and the F FWD Torque does not meet the required specification.

Mode: F.FWD mode without a cassette tape

Adjustment procedure:

- (1) Put the unit into the F FWD mode without a cassette tape.
- (2) Loosen the fixing screws of the T Idler Solenoid about 1/2 turn.
- (3) Adjust the position of the T Idler Solenoid until the clearance between the T Reel Table and FF Idler become 0.01 to 0.1 mm.
- (4) Note the adjustment hole and check that the black line of the solenoid is in this hole.
- (5) Move the Solenoid in the direction of the arrow only one pitch from the position of step (4). Tighten the fixing screws.



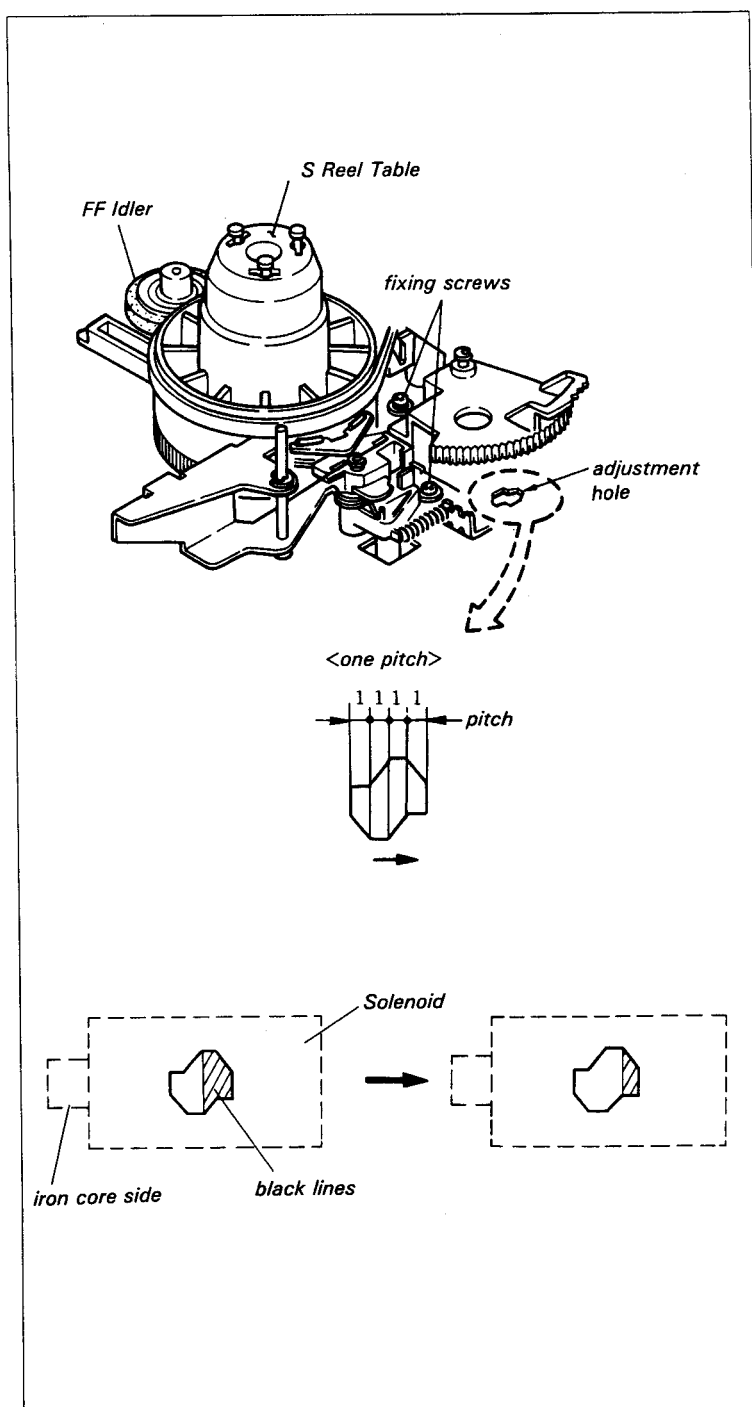
5-7-3. S Idler Solenoid Position Adjustment

. This adjustment is required only when the S Idler Solenoid is replaced or removed, and the REW Torque does not meet the required specification.

Mode: REW mode without a cassette tape

Adjustment procedure:

- (1) Put the unit into the REW mode without a cassette tape.
- (2) Loosen the fixing screws of the S Idler Solenoid about 1/2 turn.
- (3) Adjust the position of the S Idler Solenoid until the clearance between the S Reel Table and FF Idler become 0.01 to 0.1 mm.
- (4) Note the adjustment hole and check that the black line of the solenoid is in this hole.
- (5) Move the Solenoid in the direction of the arrow only one pitch from the position of step (4). Tighten the fixing screws.



5-7-4. Pinch Solenoid Installing Position Adjustment

. This adjustment is required only when the Pinch Solenoid is replaced or removed.

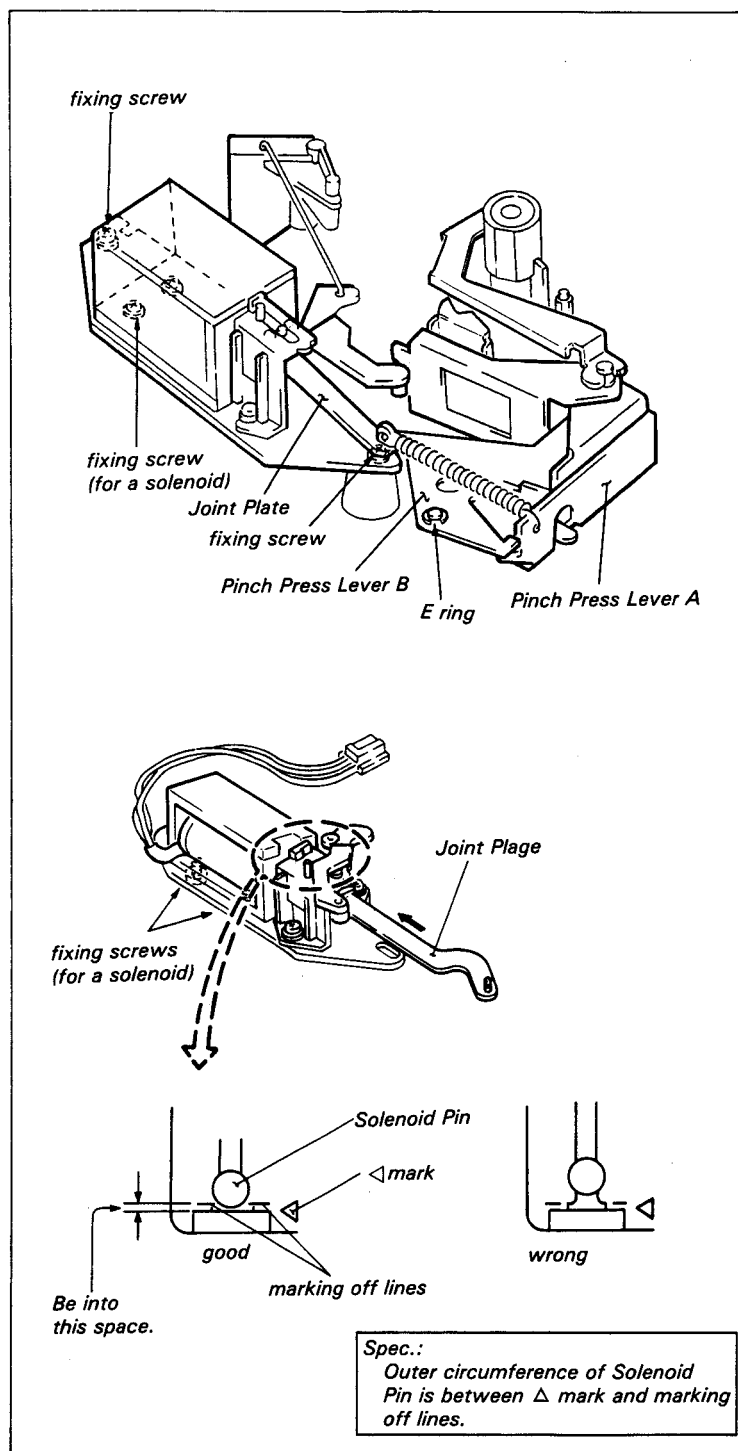
Mode: PLAY mode with a cassette tape

Check procedure:

- (1) Insert a cassette tape and put the unit into the PLAY mode.
- (2) Check that the outer circumference of the Solenoid Pin meets the required specification.

Adjustment procedure:

- (1) Remove the E ring and the Joint Plate from the Pinch Press Lever B.
- (2) Remove the Pinch Solenoid Block from the chassis after removing the two fixing screws.
- (3) Move the Joint Plate to the fully energized position (as far as it will go in the direction of the arrow). Adjust the position of the solenoid so that the outer circumference of the Solenoid Pin to meet the required specification.
- (4) Install the Pinch Solenoid Block on the unit. Perform the check procedure.



5-7-5. T Brake Solenoid Position Adjustment

Tool: Eccentric screwdriver (6 mm dia.)

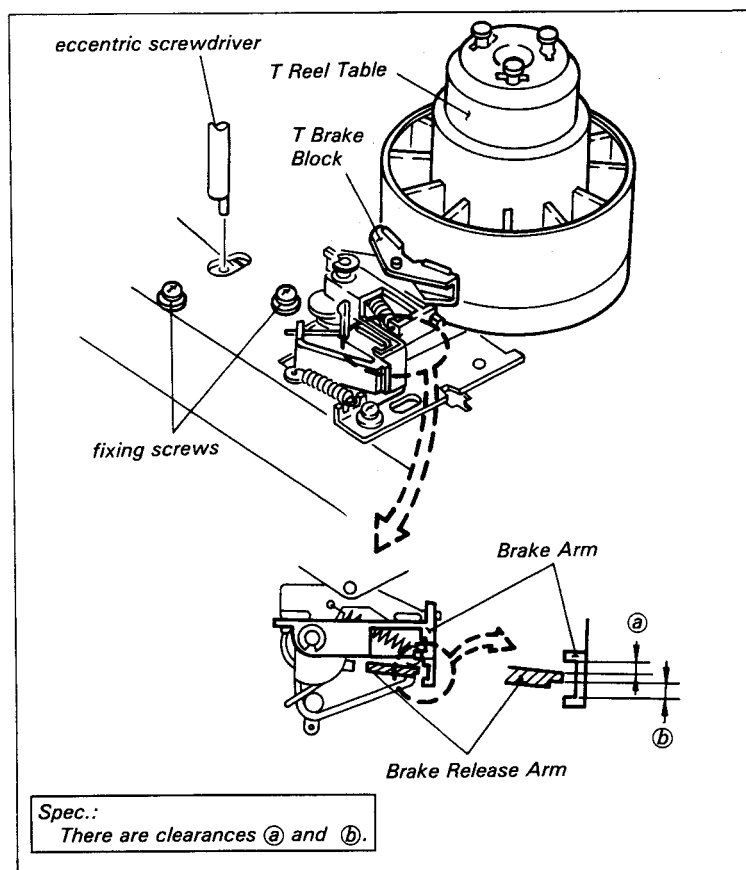
Mode: PLAY mode without a cassette tape

Check procedure:

- (1) Check that the relationship between the Brake Release Arm and the Brake Arm meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the T Brake Solenoid with an eccentric screwdriver to meet the required specification.



5-7-6. S Brake Solenoid Position Adjustment

Tool: Eccentric screwdriver (6 mm dia.)

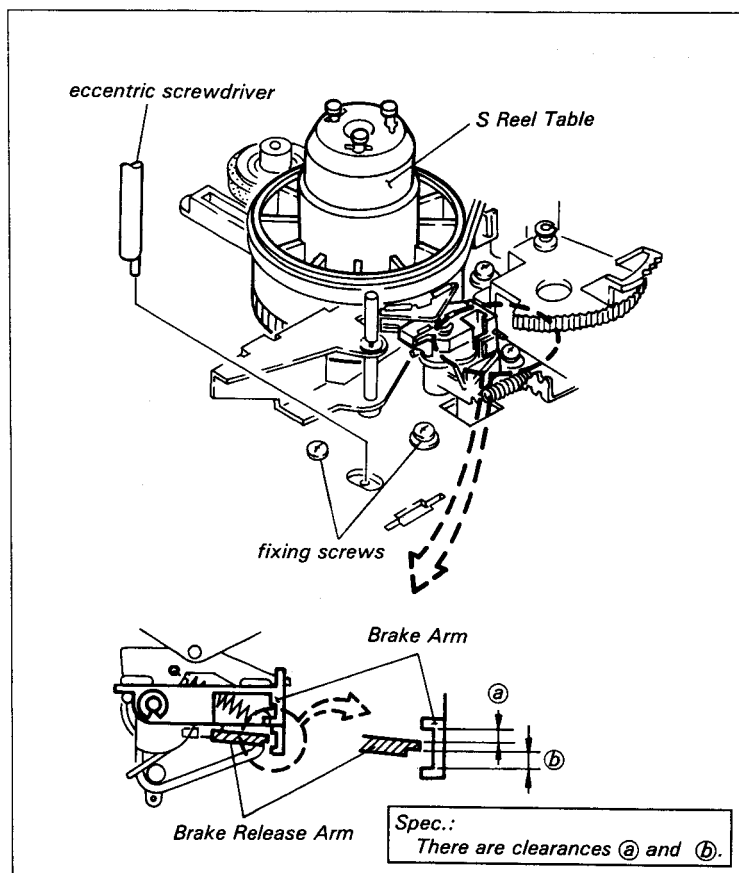
Mode: PLAY mode without a cassette tape

Check procedure:

- (1) Check that the relationship between the Brake Release Arm and the Brake Arm meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the S Brake Solenoid with an eccentric screwdriver to meet the required specification.



5-7-7. Skew Solenoid Position Adjustment

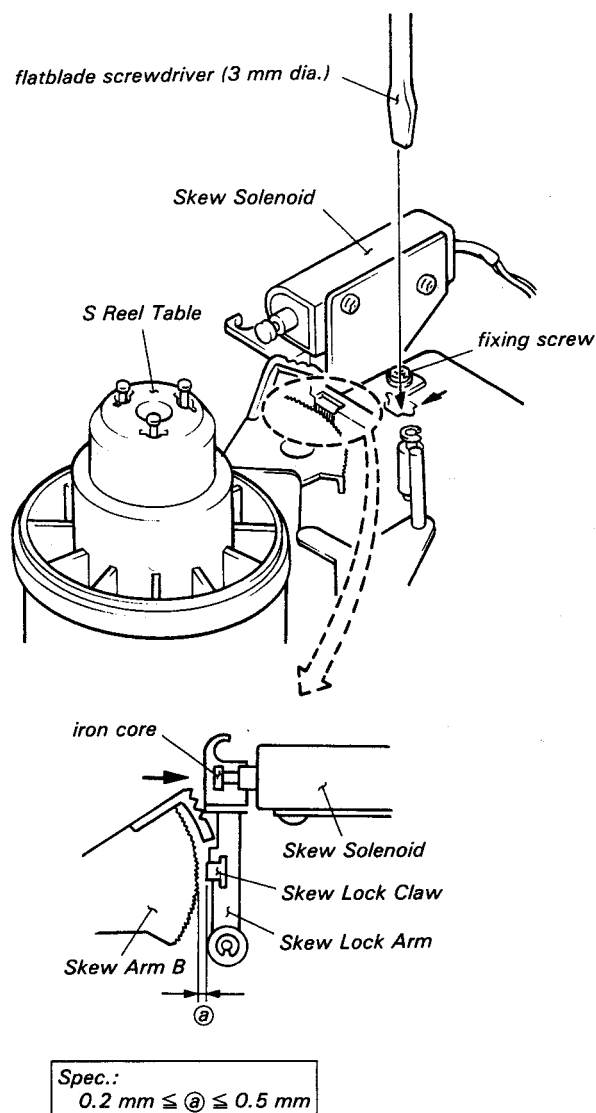
Mode: EJECT completion mode

Check procedure:

- (1) When pushed the iron core in the direction of the arrow, check that the clearance between the Skew Lock Claw and Skew Arm B meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw of the Skew Solenoid Block 1/4 to 1/2 turn.
- (2) Adjust the position of the Skew Solenoid with a flatblade screwdriver (3 mm dia.) to meet the required specification.



5-8. CASSETTE-UP COMPARTMENT ADJUSTMENT

- . The Cassette-up Compartment has two photo-electric switches. The ON/OFF timings of these switches are adjusted in these procedures.
- . Remove the Cassette-up Compartment from the unit for these adjustments.

5-8-1. Cassette-in Switch Position Adjustment

Tool: Circuit tester
Thickness gauge

Preparation:

- (1) Connect jumpers from the harness plug for the Cassette-up Compartment to terminals on the CC-36 Board as follows:

plug of harness (CN1)	terminal on CC-36 Board
pin 4 (5V) ←	→ pin 4/CN1
pin 5 or 2 (GND) ←	→ pin 5 or 2/CN1

- (2) Turn the power ON.

Check procedure:

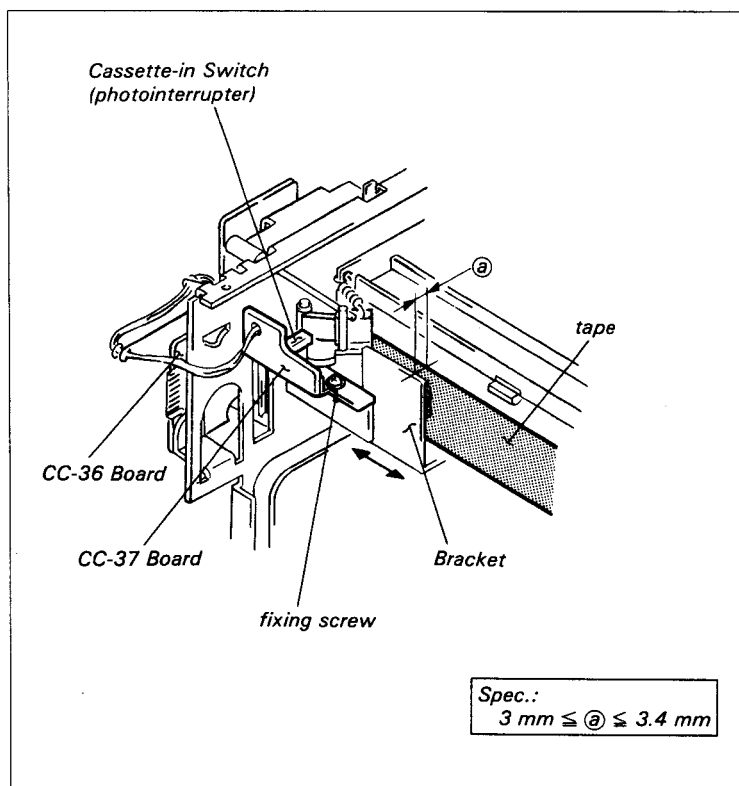
- (1) Connect the circuit tester to pin 1 (H; CASSETTE IN) of CN1 on the CC-36 Board.
- (2) Slowly insert a KCA-60 type cassette tape.
- (3) When the circuit tester indicates "H" (about 5V), check that the clearance between the front side of the cassette tape and the bracket of the Cassette-up Compartment meets the required specification.

Adjustment procedure:

- (1) Move the CC-37 Board (Cassette-in Switch) in the direction of the arrow to meet the required specification.

Reference:

Insert a 3.3 mm thickness gauge between the cassette tape and the bracket. Adjust the position of the Cassette-in Switch until the circuit tester indicates to "H".



5-8-2. Cassette-down Switch Position Adjustment

Tool: Circuit tester

Preparation:

- (1) Connect jumpers from the harness plug of the Cassette-up Compartment to terminal on the CC-36 Board as follows:

plug of harness (CN1)	terminal on CC-36 Board
pin 4 (5V) ←	→ pin 4/CN1
pin 5 or 2 (GND) ←	→ pin 5 of 2/CN1

- (2) Turn the power ON.

Check procedure:

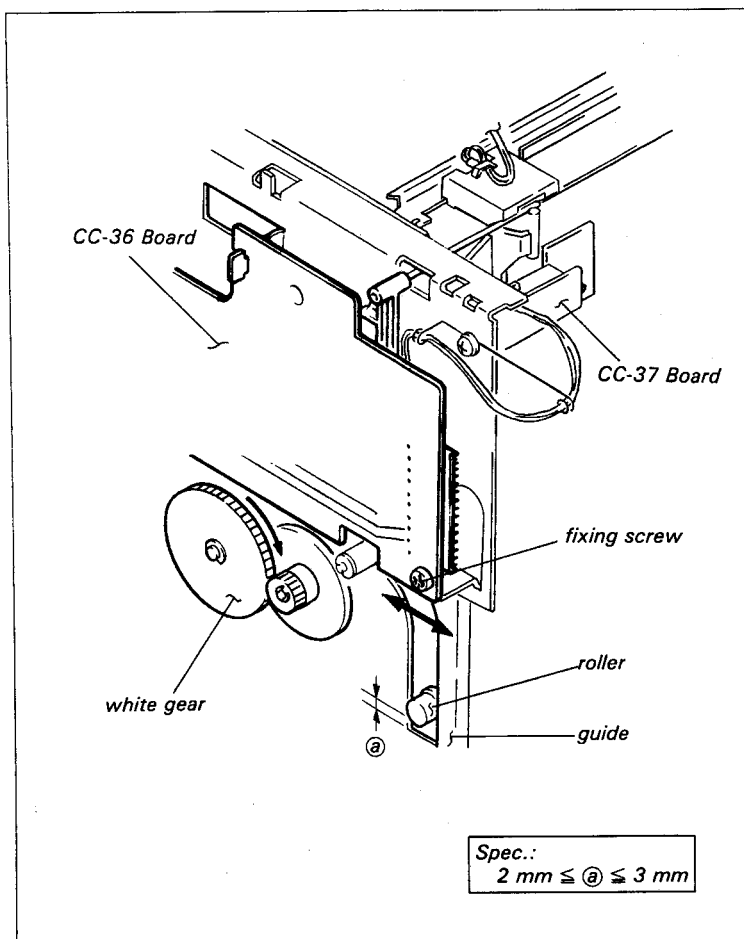
- (1) Connect the circuit tester to pin 3 (H; CASSETTE DOWN) of CN1 on the CC-36 Board.
- (2) Insert a KCA-60 type cassette tape and turn the white gear slowly in the direction of the arrow.
- (3) When the circuit tester indicates "H", check that the clearance between the roller and the guide meets the required specification.

Adjustment procedure:

- (1) Move the CC-36 Board in the direction of the arrow to meet the required specification.

Reference:

Turn the white gear on the right side until the clearance between the roller and the guide is 2.2 mm. Adjust the position of the Cassette-down Switch so that the circuit tester indicates "H" in this position.



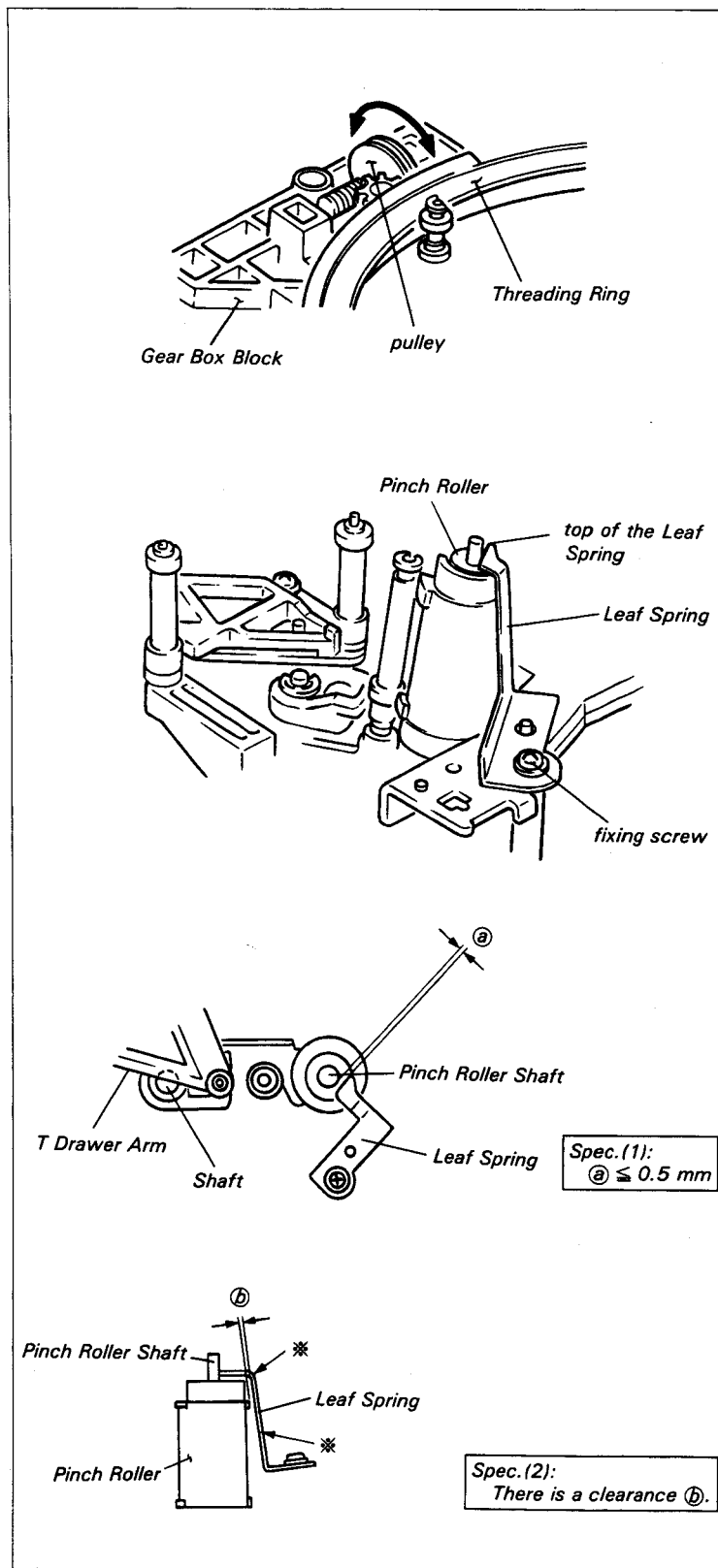
5-9. LEAF SPRING POSITION ADJUSTMENT

Check procedure:

- (1) Put the unit into the PLAY mode without a cassette tape and then put the unit into the EJECT mode.
- (2) Turn the Gear Box Pulley by hand so that the edge of the T Drawer Arm is at the center of the shaft as shown in the figure.
- (3) Check that the clearance between the Leaf Spring and the Pinch Roller Shaft meets the required specification (1).
- (4) Put the unit into the PLAY mode without a cassette tape and then put the unit into the EJECT completion mode.
- (5) Check that the Leaf Spring touches the Pinch Roller Shaft, and the clearance between the Leaf Spring and the Pinch Roller meets the required specification (2).

Adjustment procedure:

- (1) Adjust the position of the Leaf Spring to meet the required specifications (1) and (2). If only specification (2) cannot be obtained, bend the * of the Leaf Spring to meet the required specification.



5-10. PINCH LEVER AZIMUTH ADJUSTMENT

Tool: Pinch lever adjustment jig

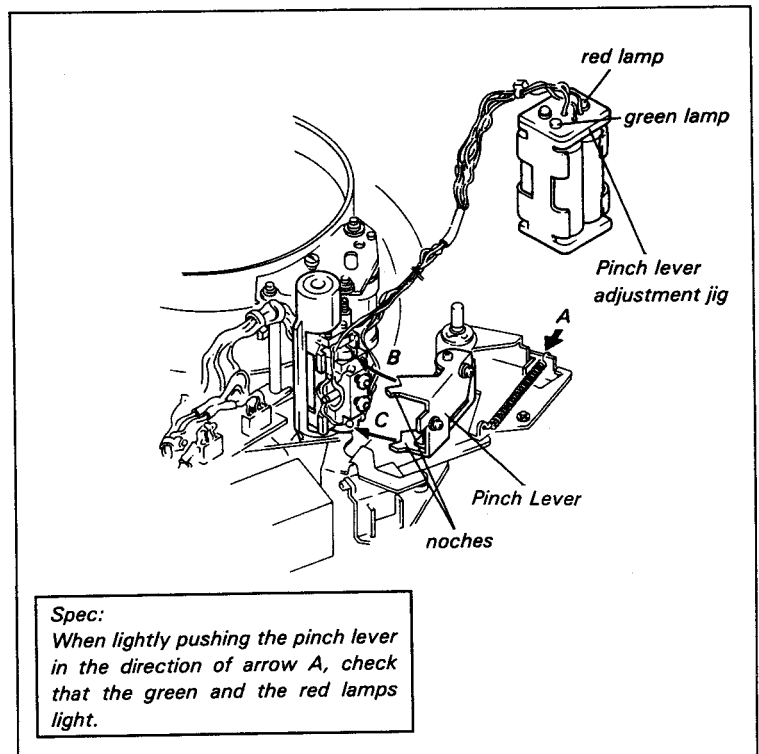
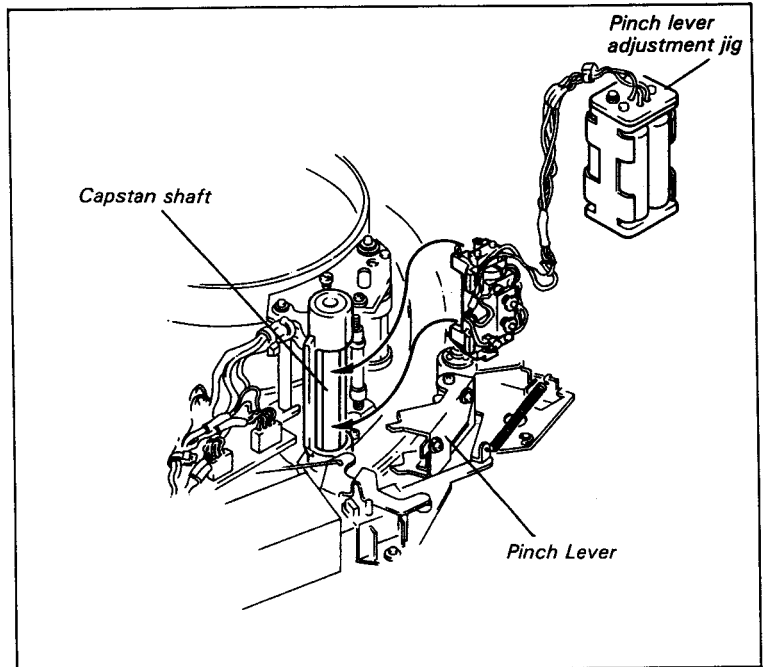
Mode: EJECT completion mode

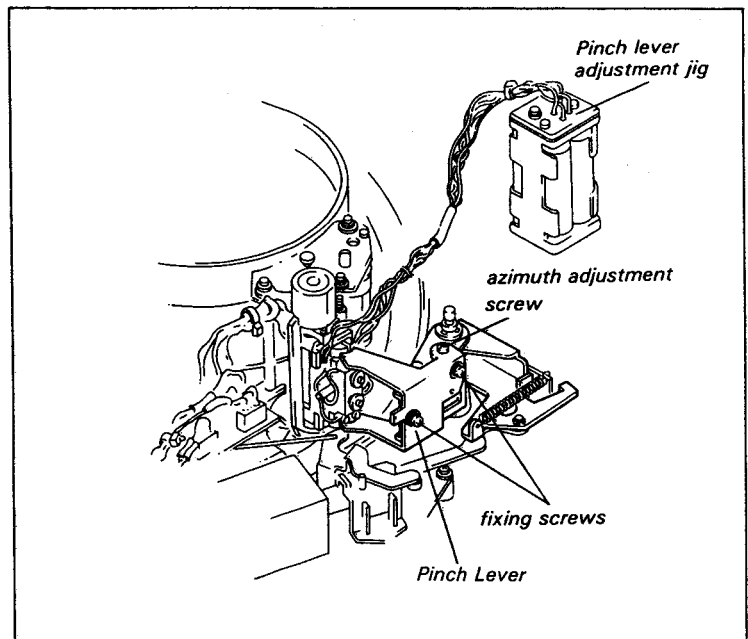
Check procedures:

- (1) Remove the Pre-set Deck and install the pinch lever adjustment jig to the capstan shaft as shown in the figure.
- (2) Push the pinch lever in the direction of arrow A and set the notches of the pinch lever to B and C.
- (3) When lightly pushing the pinch lever in the direction of arrow A, check that the green and the red lamps light.

Adjustment procedure:

- (1) Loosen the two fixing screws of the pinch lever and adjust the azimuth adjustment screw to meet the required specification.
- (2) After tightening the two fixing screws, check that the azimuth adjustment screw is thghten.
- (3) Check that it meets the required specification again.





SECTION 6

BACK TENSION AND TORQUE ALIGNMENT

6-1. BRAKE SYSTEM ADJUSTMENT

6-1-1. S Brake Torque Adjustment

Tool: Reel table torque measurement tape
(100 mm dia.)

Tension scale (200 g full scale)

Mode: EJECT completion / power OFF mode

Check procedure:

- (1) Grasp the top of the S Reel Table. While turning it in the clockwise direction approx. 30 degrees, check that the clearance between the Brake Arm and the Lining Holder meets the required specification (1).
- (2) Place the jig tape on the S Reel Table and hook a tension scale to the end of the jig tape. Pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification (2).

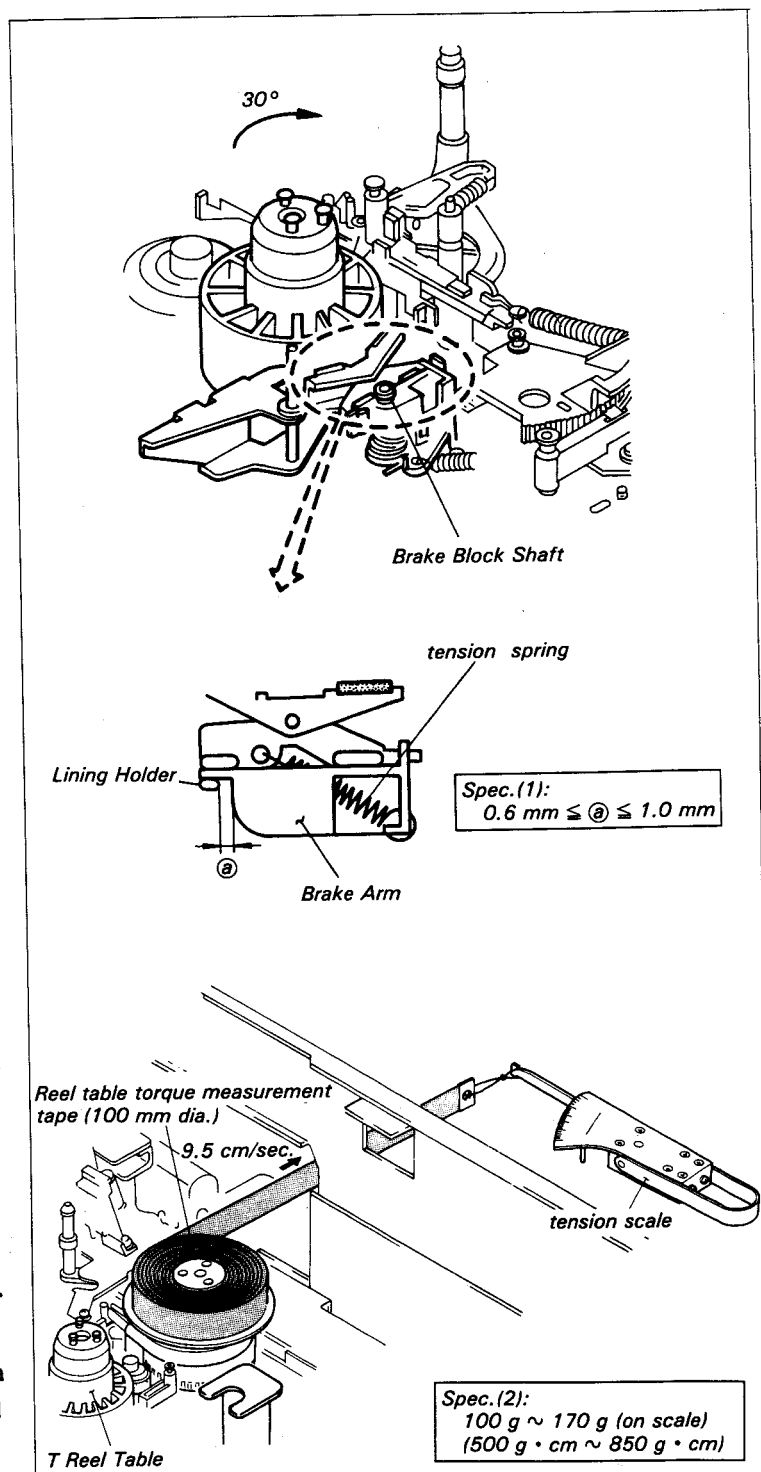
Adjustment procedure:

For Spec. (1)

- (1) Bend the Brake Block Shaft toward the reel table (or in the opposite direction) by hand.

For Spec. (2)

- (2) Clean the surface of the reel table with a cloth moistened with cleaning fluid.
- (3) If does not meet the specification (2) in step (2), replace the tension spring to the following parts:
.3-548-124-00
.3-555-210-00
.4-907-156-01
- (4) If does not meet the specification (2) in step (3), replace the Lining Holder and check again.
- (5) If does not meet the specification in Step (4), replace the reel table and check again.



6-1-2. T Brake Torque Adjustment

Tool: Reel table torque measurement tape
(100 mm dia.)

Tension scale (200 g full scale)

Mode: EJECT completion / power OFF mode

Check procedure:

- (1) Grasp the top of the T Reel Table. While turning it in the clockwise direction approx. 30 degrees, check that the clearance between the Brake Arm and the Lining Holder meets the required specification (1).
- (2) Place the jig tape on the T Reel Table and hook a tension scale to the end of the jig tape. While pushing the T Tension Regulator to the left, pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification (2).

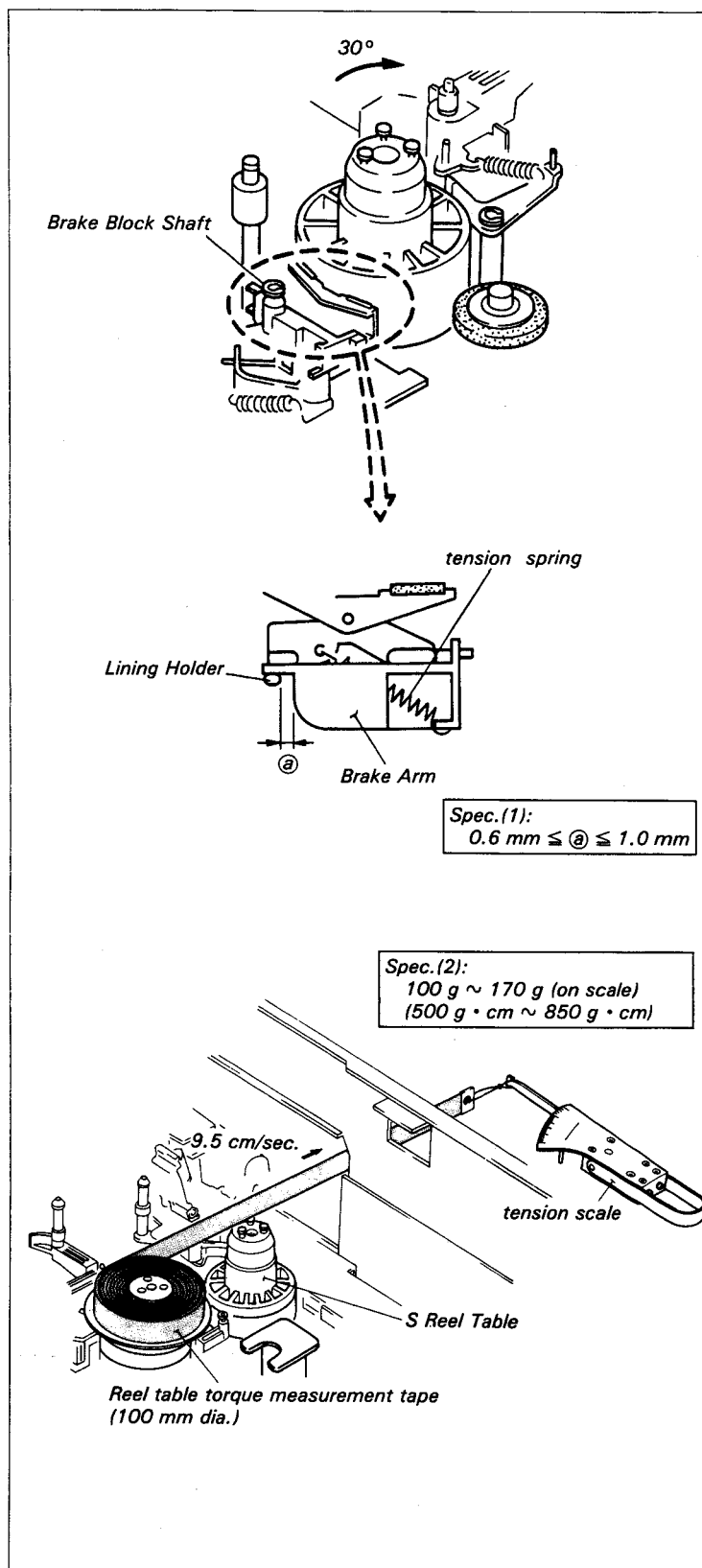
Adjustment procedure:

For Spec. (1)

- (1) Bend the Brake Block Shaft toward the reel table (or in the opposite direction) by hand.

For Spec. (2)

- (2) Clean the surface of the reel table with a cloth moistened with cleaning fluid.
- (3) If does no meet the specification (2) in step (2), replace the tension spring to the following parts:
.3-548-124-00
.3-555-210-00
.4-907-156-01
- (4) If does not meet the specification (2) in step (3), replace the Lining Holder and check again.
- (5) If does not meet the specification in Step (4), replace the reel table and check again.



6-1-3. REW Brake Torque Adjustment

Mode: REW mode

Tool: Reel table torque measurement tape
(100 mm dia.)

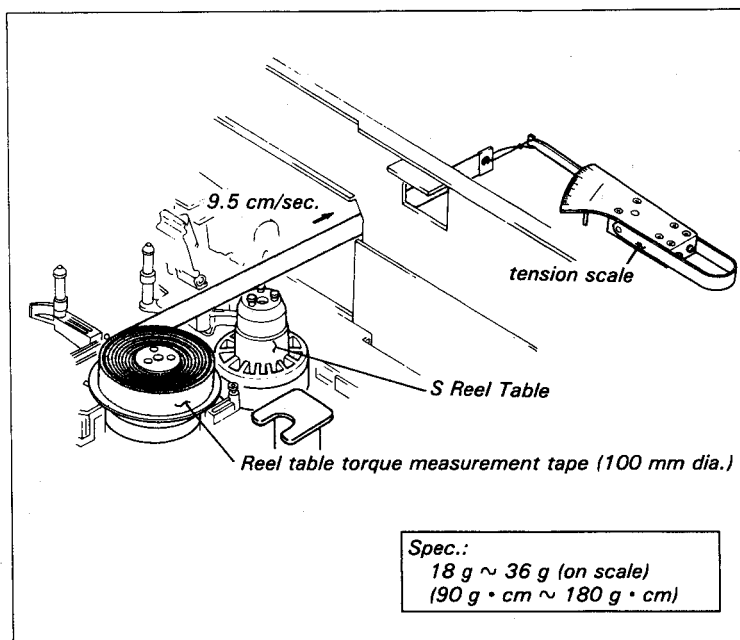
Tension scale (50 g full scale)

Check procedure:

- (1) Place the jig tape on the T Reel Table and hook a tension scale to the end of the jig tape.
- (2) Put the unit into the REW mode. Pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

- (1) If does not meet the specification, replace the R Brake Ass'y and check again.
- (2) If does not meet the specification in Step (1), replace the Reel Table and check again.



6-2. F FWD / REW TORQUE ADJUSTMENT

- . It is required that the Section 5-7-2, T Idler Solenoid Position Adjustment and Section 5-7-3, S Idler Solenoid Position Adjustment are correct before initiating this adjustment.

Mode: F FWD and REW modes

Tool: Reel table torque measurement tape
(100 mm dia.)

Tension scale (500 g full scale)

Check procedure:

F FWD Torque

- (1) Place the jig tape on the T Reel Table and hook a tension scale to the end of the tape. Pull out the tape.
- (2) Put the unit into the F FWD mode. Let the tape be pulled at a constant speed of approx. 9.5cm/sec. Check that the scale reading meets the required specification.

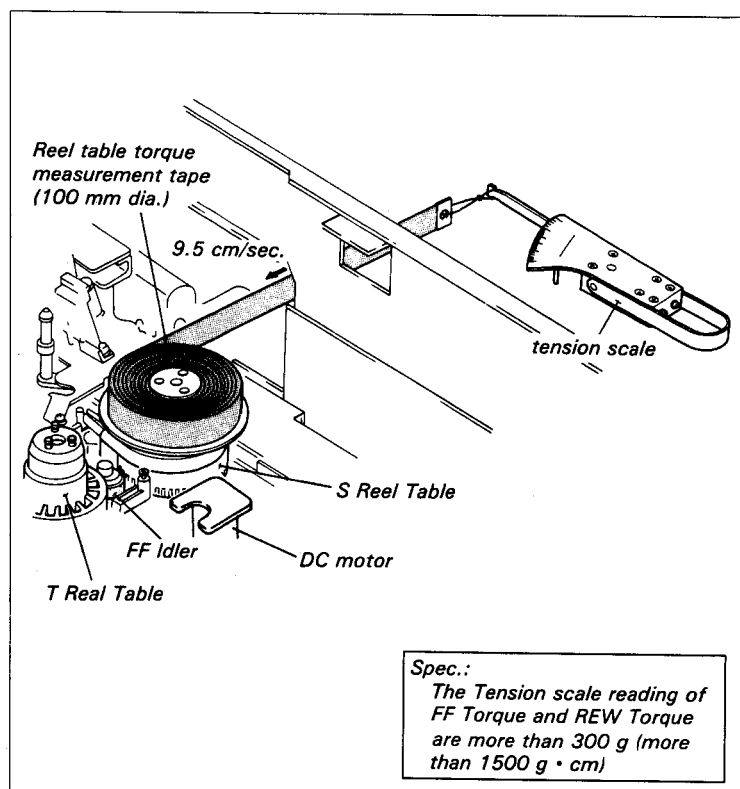
REW Torque

- (3) Install the jig tape on the S Reel Table and hook a tension scale to the end of the tape. Pull out the tape.
- (4) Put the unit into the REW mode. Let the tape be pulled at the constant speed of approx. 9.5cm/sec. Check that the scale reading meets the required specification.

Adjustment procedure:

Both F FWD Torque and REW Torque are adjusted by the following adjustment procedures.

- (1) Clean the surface of the Reel Table, FF idler and belt with a cloth moistened with cleaning fluid. Check the torque again.



- (2) If Step (1) does not meet the specification, put the unit into F FWD or REW mode without a cassette tape. Check that the dc voltage at the terminals of the dc motor is $10.5 \pm 1.5V$. If the dc voltage is out of specification, check that the circuit operation of the SY Board operates correctly.
- (3) If does not meet the specification in Steps (1) and (2), replace the Reel Table, FF idler and belt.

6-3. FWD TORQUE ADJUSTMENT

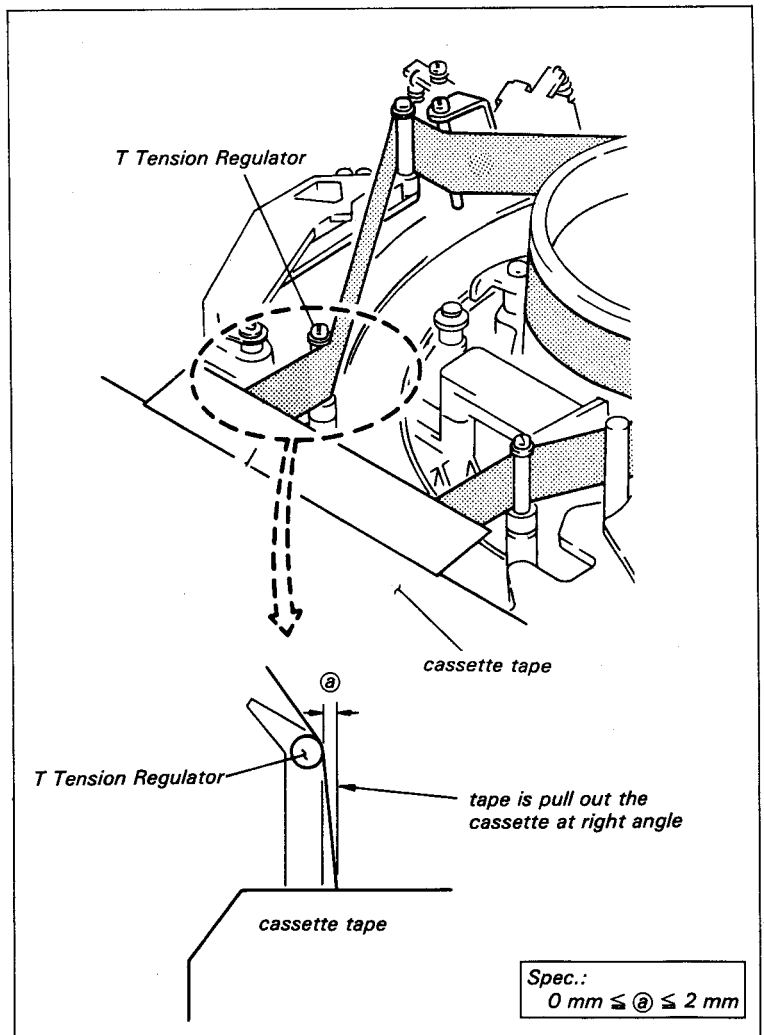
Mode: x1/2 to x1 FWD SEARCH mode

Check procedure:

- (1) Insert a KCS-20 cassette tape wound to the tape end portion.
- (2) Short between TP3 on the SY-141B Board and GND with a shorting clip.
- (3) Put the unit into x1/2 to x1 FWD SEARCH mode with search dial.
- (4) Check that the relationship between the T Tension Regulator Arm and cassette tape meets the required specification.

Adjustment procedure:

- (1) Adjust RV3 on the SY-141B Board until it meets the required specification in the FWD mode.



6-4. REV TORQUE ADJUSTMENT

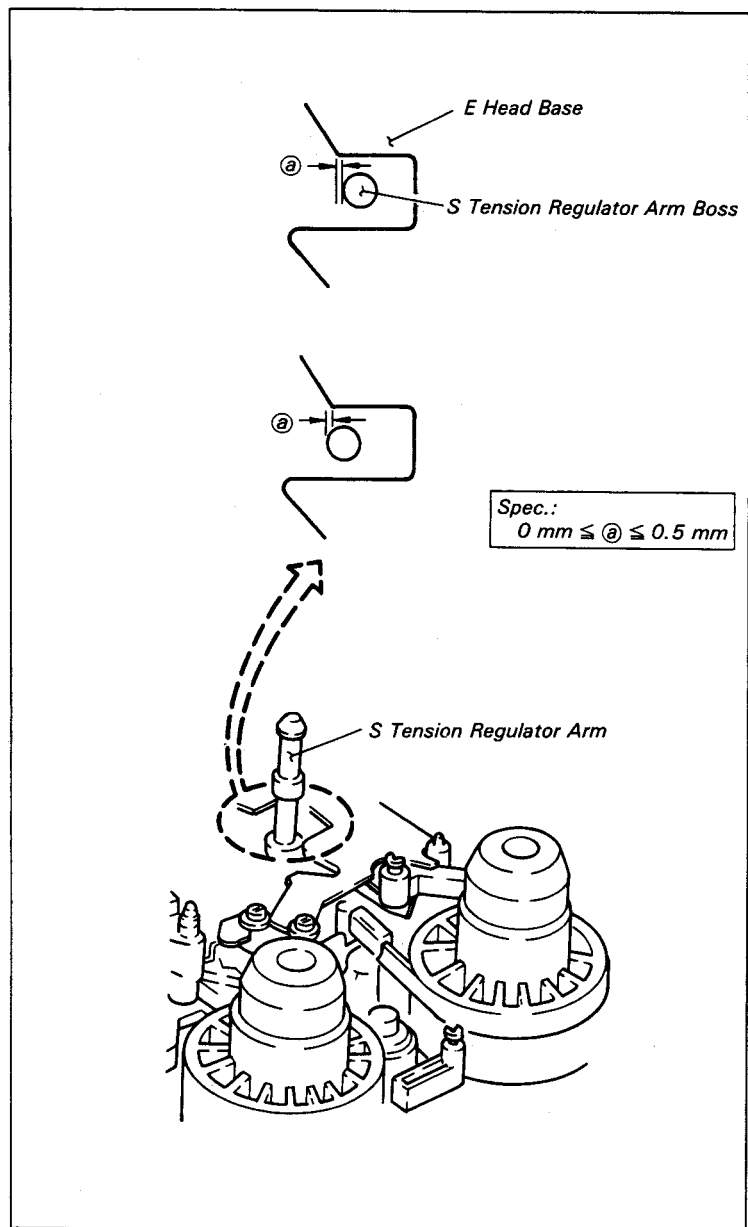
Mode: x1/2 to x1 REV SEARCH mode

Check procedure:

- (1) Insert a KCA-60 cassette tape wound to the tape beginning portion.
- (2) Short between TP3 on the SY-141B Board and GND with a shorting clip.
- (3) Put the unit into x1/2 to x1 REV SEARCH mode with search dial.
- (4) Check that the relationship between the S Tension Regulator Boss and the bracket of the Erase Head Base meets the required specification.

Adjustment procedure:

- (1) Adjust RV2 on the SY-141B Board until it meets the required specification.



6-5. F FWD BACK TENSION ADJUSTMENT

- . It is required that the Section 5-6-3, S Tension Regulator Operating Position Adjustment is correct before initiating this adjustment.
- . It is required that the Section 6-6, FWD Back Tension Adjustment is performed after this adjustment.

Tool: Back tension adjustment jig
Reel table torque measurement tape
(100 mm dia.)
Tension scale (50 g full scale)

Preparation:

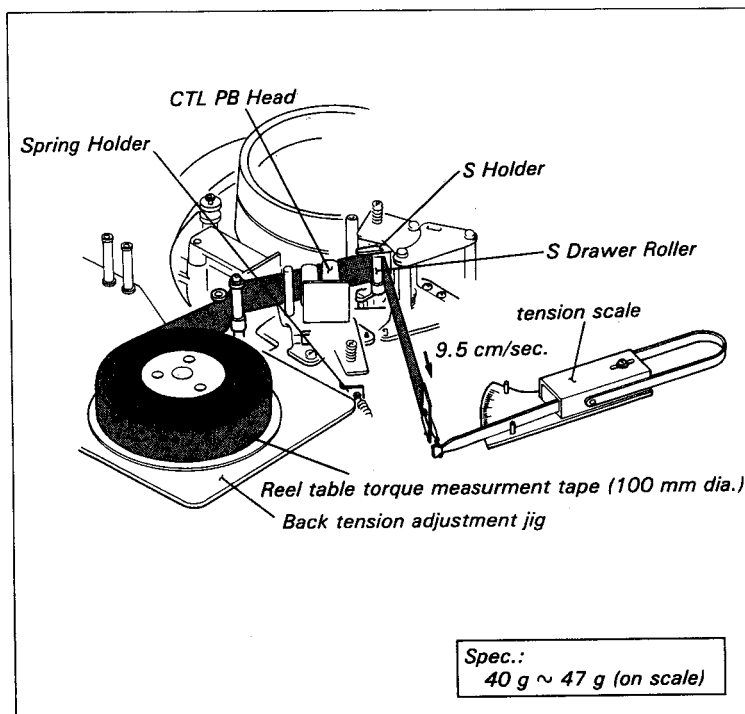
- (1) Turn the power ON and put the unit into the FR-STOP mode. (When the power is ON, the S Drawer Arm moves and the unit automatically enters the FR-STOP mode.)
- (2) Turn the Pulley of Gear Box Block by hand in the direction of the Threading Ring until the S Drawer Roller is in front of the CTL PB Head.
- (3) Place the Back Tension Adjustment Jig.
- (4) Place the jig tape on the S Reel Table and pull out the tape as shown in the figure. Check that the tape does not curl at the flange of the S Drawer Roller.
- (5) Turn the Pulley in the opposite direction in Step (2) until the S Drawer Roller is engaged with the S Holder.
- (6) Hook a tension scale to the end of the tape.

Check procedure:

- (1) Press the F FWD button and put the unit into the F FWD mode.
- (2) Pull out a tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

- (1) Move the position of the Spring Holder with a flatblade screwdrivers (3mm dia.) to meet the required specification.
- (2) After the adjustment, perform the check procedures again.
- (3) Perform the Section 6-6, FWD Back Tension Adjustment.



6-6. FWD BACK TENSION ADJUSTMENT

Tool: Back tension measurement special cassette tape

This cassette should be prepared as follows:

- . Wind up tape to the S Reel and remove the * marked seven fixing screws on the back of the cassette as shown in the figure. Remove the upper half of the cassette. (fig.1)
- Cut the cassette tape and put a piece of adhesive tape on the end of the cassette tape, and then make a hole through it. Lace a piece of string through the hole and tie a small loop. (fig.2)

Tension scale (100 g full scale)

Preparation:

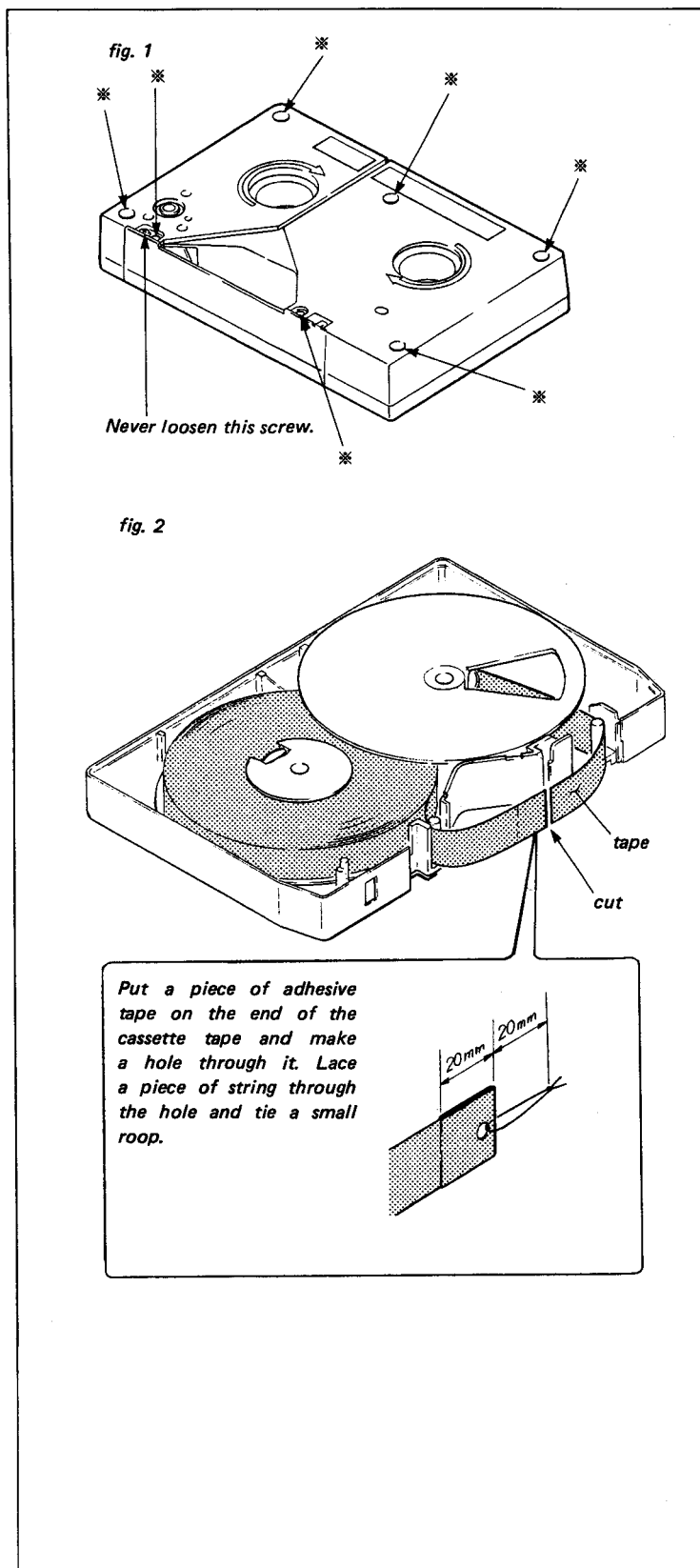
- (1) Push the Skew Lock Arm in the direction of the arrow.
- (2) Place the special cassette tape on the reel tables and pull out the tape as shown in the figure.
- (3) Hold the special tape with a hand securely at the position as shown in the figure. Turn the power ON and put the unit into the FR-STOP mode. Check that the tape does not curl at the flange of the S Drawer Roller.
- (4) Hook the tension scale to the end of the special tape. Be sure that the tape does not curl at the upper or lower flange of the S Drawer Roller.

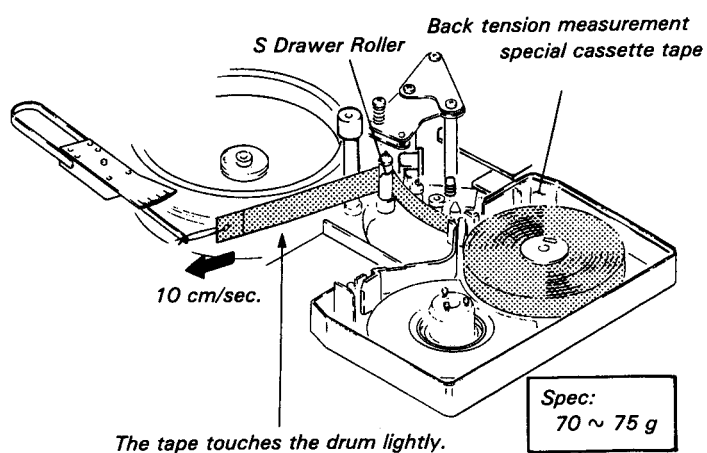
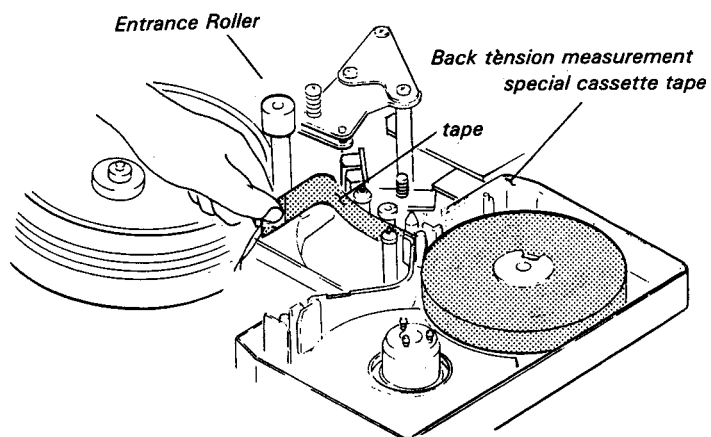
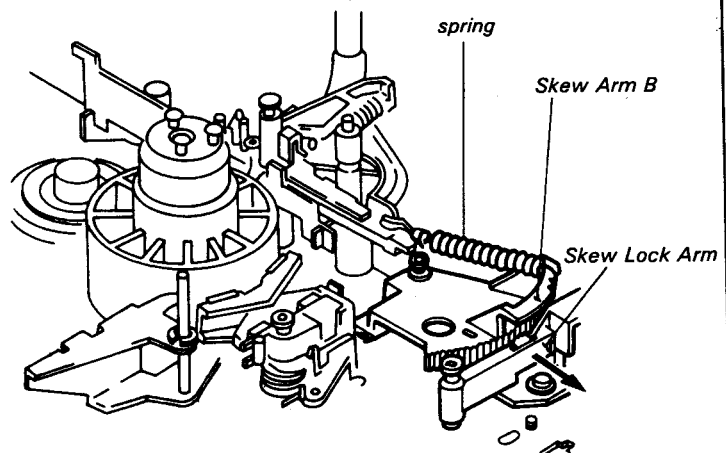
Check procedure:

- (1) Put the unit into the PLAY mode. Pull out the tape at a constant speed of approx. 10cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the proper spring hook of the Skew Arm B to meet the required specification.
- (2) After adjustment, perform the check procedures again.





SECTION 7

TAPE RUN ALIGNMENT

7-1. F FWD/REW MODES TAPE PATH ADJUSTMENT

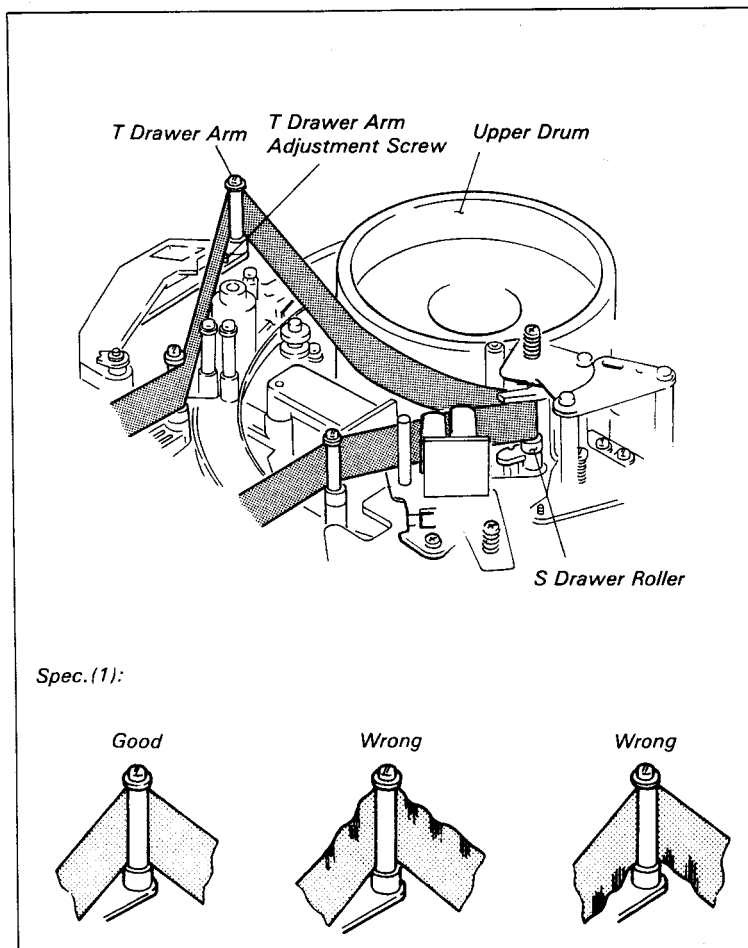
Mode: F FWD and REW modes

Check procedure:

- (1) Insert a KCA-60 cassette tape which has advanced about half way through (about 30 minutes). Put the unit into the REW mode.
- (2) Check that the tape tension is equal around the T Drawer Arm. (Spec.1)
- (3) Check that the tape runs without any curling at the upper or lower flange of the S Drawer Roller in the REW mode. (Spec. 2)
- (4) Put the unit into the STOP mode, and then into the REW mode. Check that the tape runs without any curling at the S Drawer Roller at the moment just after entering the REW mode. (Spec. 3)
- (5) Put the unit into the F FWD mode. Check that the tape runs without any curling at the S Drawer Roller and T Drawer Arm at the moment just after entering the F FWD mode. (Spec. 4)

Adjustment procedure:

- (1) Adjust the slantness of the T Drawer Arm by turning the T Drawer Arm Adjustment Screw.



7-2. T CORRECTION GUIDE SLANTNESS ADJUSTMENT

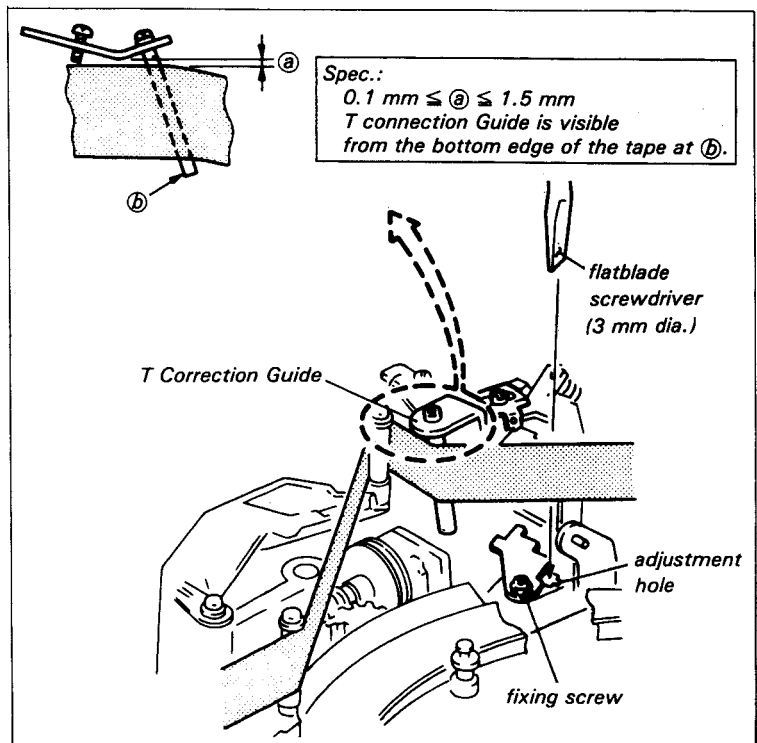
Tool: Dental mirror

Check procedure:

- (1) Insert a KCA-60 cassette tape and put the unit into the FR-STOP mode. Just as the Pinch Roller passes in front of the T Correction Guide, quickly turn the power OFF.
- (2) Check that the clearance between the upper bracket of the T Correction Guide and the top edge of the tape meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw of the T Correction Guide 1/4 to 1/2 turn.
- (2) Adjust the position of the T Correction Guide with a flatblade screwdriver (3 mm dia.) to meet the required specification.
- (3) After adjustment, perform Section 7-4, PLAY Mode Tape Path Adjustment (1).



7-3. TIME CODE HEAD ADJUSTMENT

- The Time Code Head is located near the drum. During adjustment of the Time Code Head, be sure to not damage the video head or scratch the drum.
- The Time Code Head Zenith Adjustment is closely related to the Azimuth Adjustment and the Height Adjustment. When performing any of these adjustments, always perform the other two adjustments at the same time.

7-3-1. Time Code Head Zenith Adjustment

Tool: Flatness plate

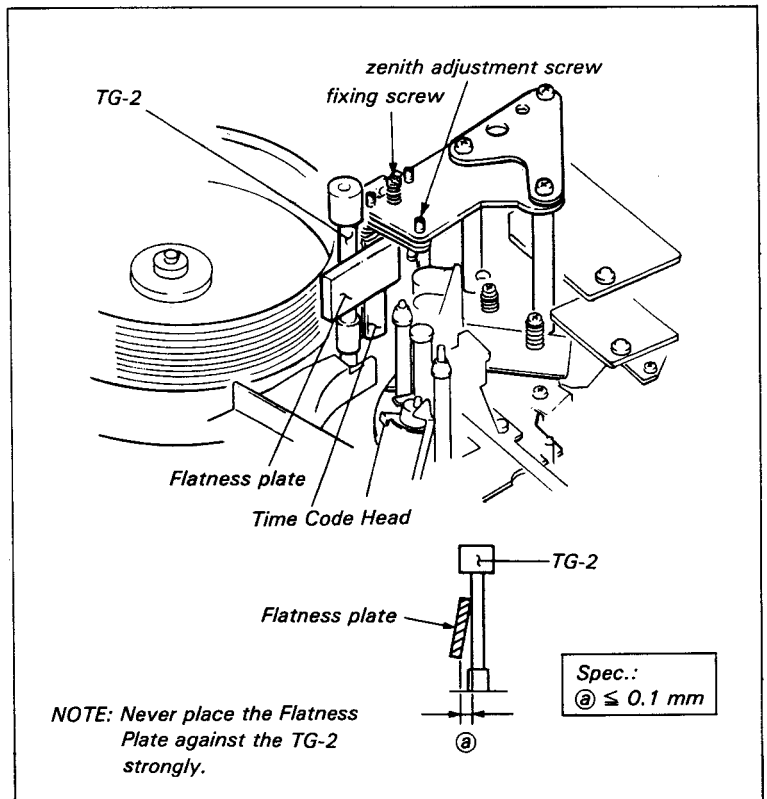
Mode: EJECT completion mode

Check procedure:

- (1) Place the Flatness Plate against the TG-2 and the Time Code Head. Check that the clearance between the TG-2 and the Flatness Plate meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw 1/4 to 1/2 turn.
- (2) Adjust the zenith of the Time Code Head by turning the zenith adjustment screw to meet the required specification.
- (3) Tighten the fixing screw and perform the check procedure.
- (4) After adjustment, perform the Time Code Head Azimuth Adjustment and the Height Adjustment.



7-3-2. Time Code Head Azimuth Adjustment

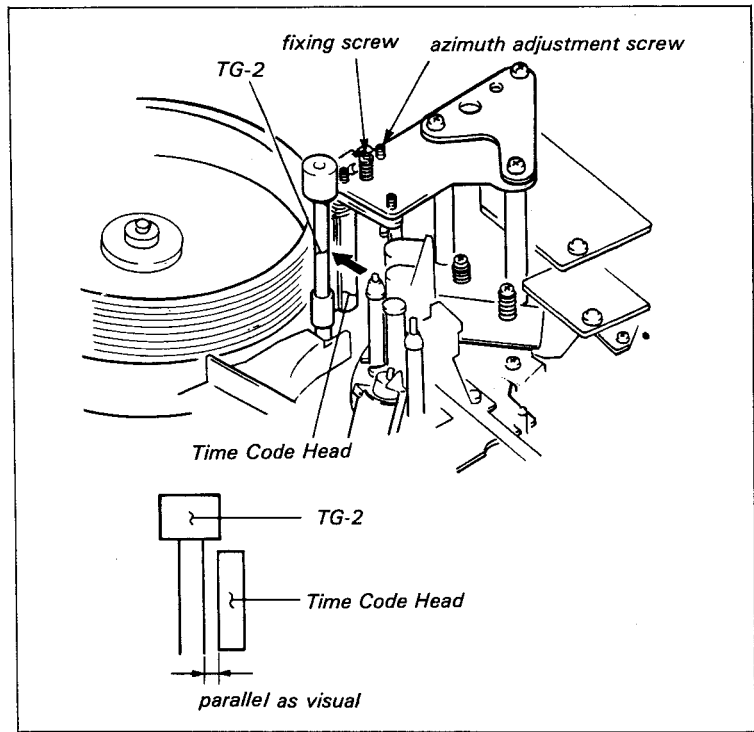
Mode: EJECT completion mode

Check procedures:

- (1) Check that the clearance between the top or the bottom of the Time Code Head and the TG-2 is parallel.

Adjustment procedure:

- (1) Loosen the fixing screw $1/4$ to $1/2$ turn.
- (2) Adjust the azimuth of the Time Code Head by turning the azimuth adjustment screw to meet the required specification.
- (3) Tighten the fixing screw and perform the check procedure.
- (4) After adjustment, perform the Time Code Head Zenith Adjustment and the Height Adjustment.



7-3-3. Time Code Head Head-to-tape Contact Adjustment

Tool: Alignment tape, RR5-1SD PAL

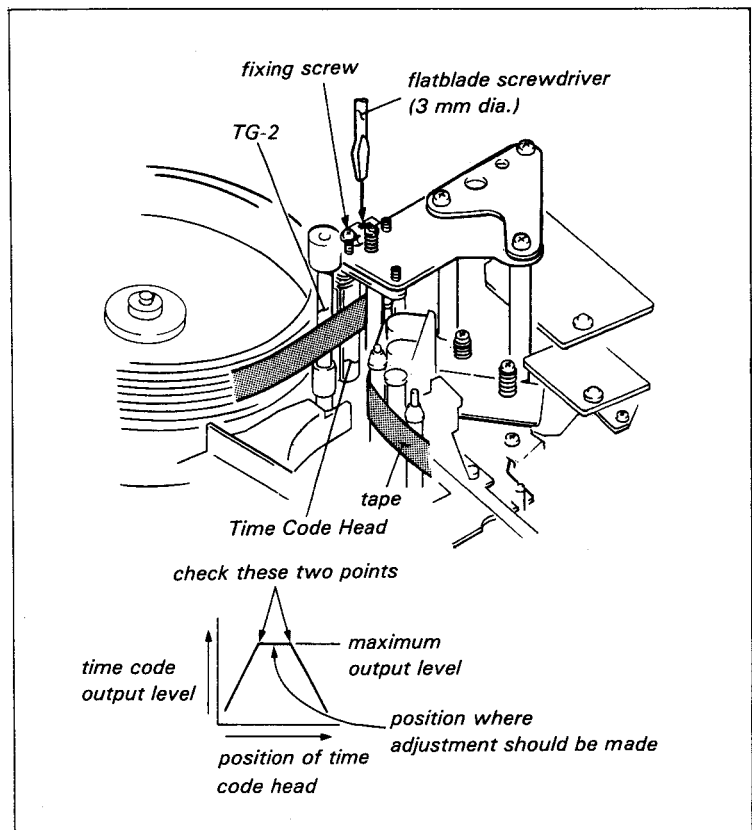
Oscilloscope

Preparation:

- (1) Connect the oscilloscope to TP405 on the NR-31 Board.
- (2) Playback the time code signal portion of the alignment tape.

Adjustment procedure:

- (1) Loosen the fixing screw of the head-to-tape contact adjustment $1/4$ to $1/2$ turn.
- (2) Insert a flatblade screwdriver (3mm dia.) into the notch as shown in the figure. Find the two points where the output waveform is at maximum and just starts to decrease.
- (3) Adjust the position of the Time Code Head Block with a flatblade screwdriver (3 mm dia.) to the center of these two points. After adjustment, tighten the fixing screw.



7-4. PLAY MODE TAPE PATH ADJUSTMENT (1)

- . It is required that Section 7-2, T Correction Guide Slantness Adjustment and Section 7-1, F FWD/REW Modes Tape Path Adjustment are correct before initiating this adjustment.

Mode: PLAY mode with a cassette tape

Check procedure:

- (1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes). Put the unit into the PLAY mode.
- (2) Check that the tape runs without any curling at the upper or lower flange of the T Drawer Guide. (Spec.1)
- (3) Check that tape tension is equal at the top and bottom edges of the tape around the T Drawer Guide, and that the tape runs without any curling at the lower flange of the T Drawer Guide. (Spec.2)

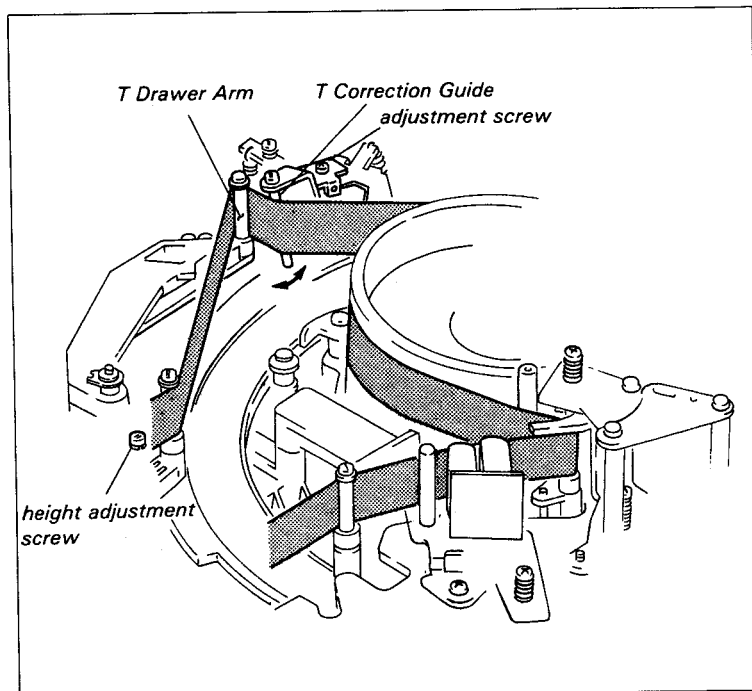
Adjustment procedure:

For Spec.1

- (1) Adjust the height of the T Drawer Arm by turning the T Drawer Arm Height Adjustment Screw.

For Spec.2

- (2) Bend the T Correction Guide in the direction of the arrow. Turn the adjustment screw if necessary to meet the required specification.



7-5. PLAY MODE TAPE PATH ADJUSTMENT (2)

Tool: Dental mirror

Mode: PLAY mode with a cassette tape

Check procedure:

- (1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes). Put the unit into the PLAY mode.
- (2) At the * marks (two positions) in the figure, check that tape tension is equal at the top and bottom edges of the tape. (Spec.1)
- (3) Check that the clearance between the lower flange of the Threading Roller and the bottom edge of the tape meets the required specification (2).

Adjustment procedure:

- (1) Loosen the fixing screw at the bottom of the Threading Roller.

For Spec.1

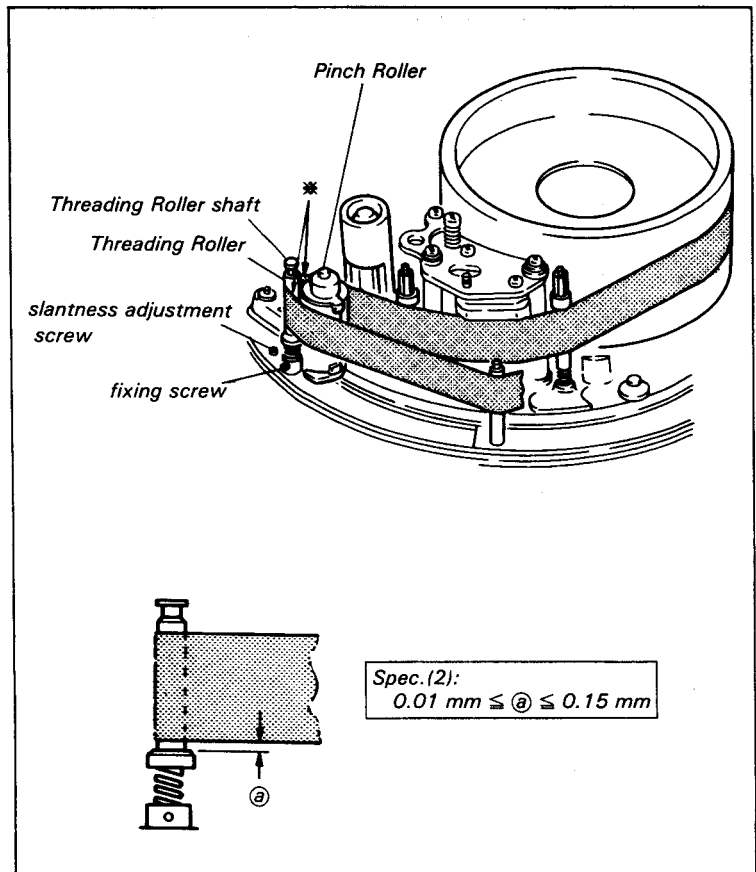
- (2) Adjust the slantness of the Threading Roller by turning the slantness adjustment screw.

NOTE:

- . After adjustment, perform Section 7-6, REV Mode Tape Path Adjustment and Section 7-7, Tape Path Adjustment Around Pinch Roller.

For Spec.2

- (3) Adjust the height of the Threading Roller by turning the Threading Roller Shaft to meet the required specification.
- (4) Check that the slantness and the height meet the required specifications (1) and (2).
- (5) After adjustment, tighten the fixing screw of the Threading Roller and perform the check procedure.



7-6. REV MODE TAPE PATH ADJUSTMENT

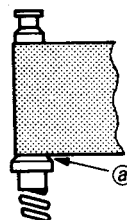
Check procedure:

- (1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes).
- (2) Put the unit into the REV SEARCH mode. Check that the tape runs in contact with the lower flange of the Threading Roller without curling.
- (3) Put the unit into the FWD SEARCH mode. Check that the clearance between the lower flange of the Threading Roller and the bottom edge of the tape meets the required specification and the tape does not curl at the lower or upper flange of TG-4.

Adjustment procedure:

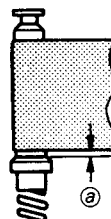
- (1) Fine adjust the height of the Threading Roller by turning the Threading Roller Shaft.
- (2) After adjustment, perform the Section 7-5, PLAY Mode Tape Path Adjustment (2).

<REV SEARCH>



Spec.:
The tape runs in contact with ② without curling.

<FWD SEARCH>



Spec.:
 $0.01 \text{ mm} \leq \text{②} \leq 0.15 \text{ mm}$

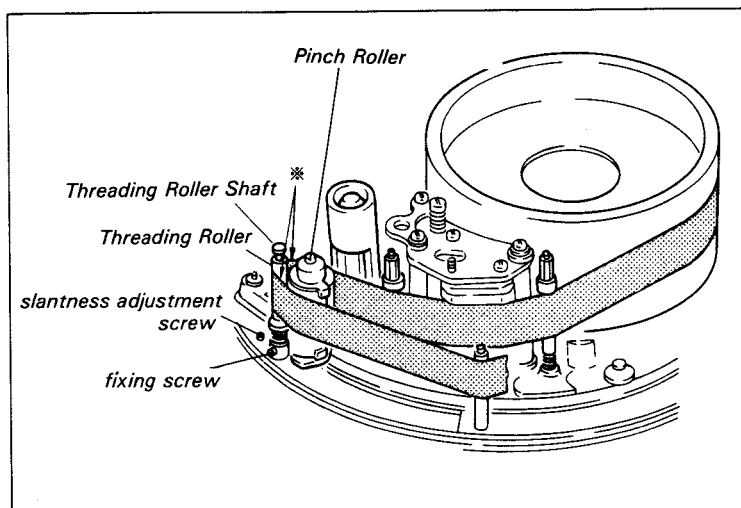
7-7. TAPE PATH ADJUSTMENT AROUND PINCH ROLLER

Check procedure:

- (1) Insert a KCA-60 cassette tape wound to the tape beginning portion.
- (2) When put the unit into the PLAY, REV SEARCH, FWD SEARCH modes, check that tape wrinkle does not appear, or disappear within 2 sec.

Adjustment procedure:

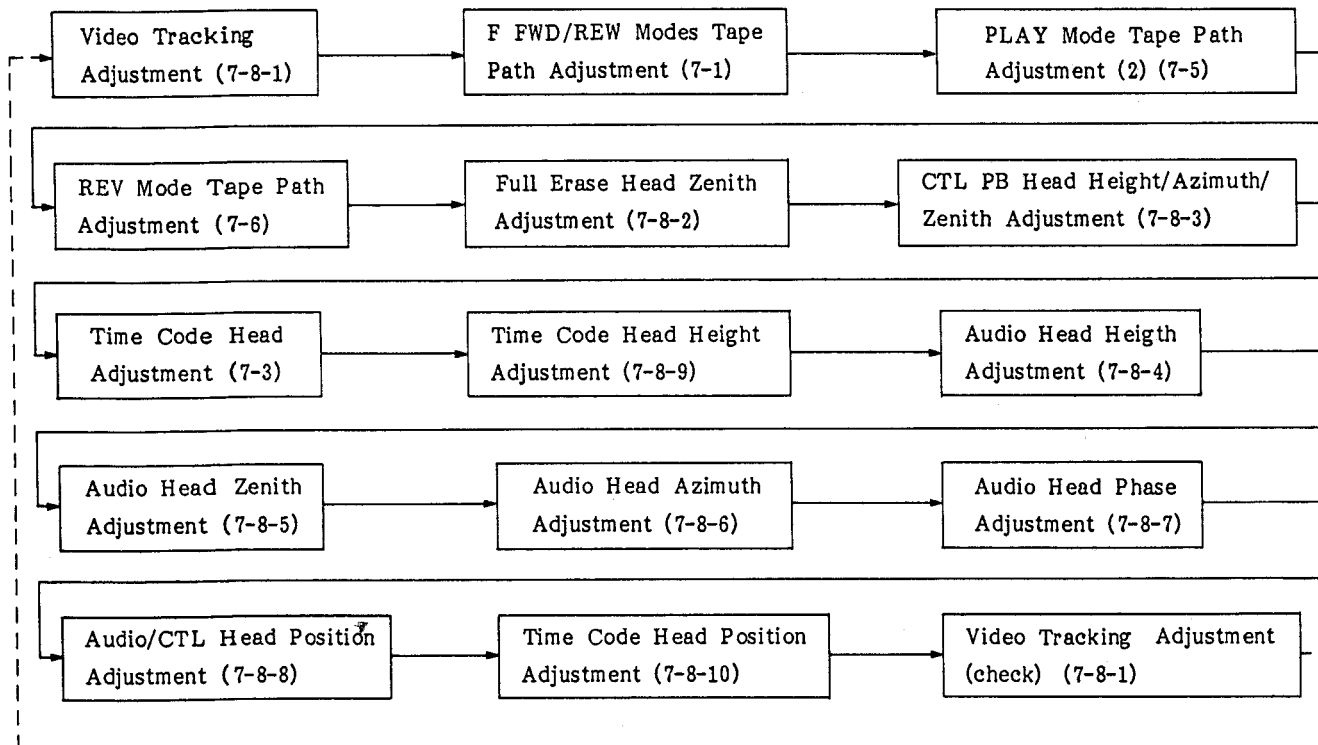
- (1) Adjust the slantness and height of the Threading Roller until it meets the required specification.
- (2) After adjustment, perform Section 7-5, PLAY Mode Tape Path Adjustment (2), Section 7-6, REV Mode Tape Path Adjustment, and Section 7-8, Tracking Adjustment.



7-8. TRACKING ADJUSTMENT

. Perform the Tracking Adjustments as follows:

(Numbers in the parenthesis refer to Section Nos.)



7-8-1. Video Tracking Adjustment

Tool: Alignment tape, RR2-1SD PAL
Flatness plate
Oscilloscope
Dental mirror

Preparation:

- (1) Connect the oscilloscope to TP18 on the DM-72 Board and EXT. TRIG to TP12 on the SV-112B Board.
- (2) Playback the alignment tape.

Check procedure:

- (1) While turning the TRACKING control knob, check that the RF waveform maintains a flat envelope while the amplitude increases and decreases.
- (2) Check that fluctuation and head-to-tape contact of the RF envelope are within the specification at the center detent position of the TRACKING control knob.

Adjustment procedure:

The S Drawer Roller Block has three adjustment screws. These three adjustment screws function as follows:

(i) Slantness adjustment screw (a)

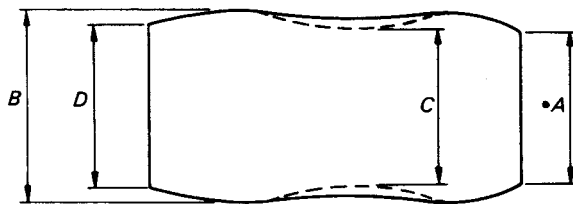
Turn this screw in the clockwise direction, then the S Drawer Roller slants in the direction of arrow A.

(ii) Slantness adjustment screw (b)

Turn this screw in the counterclockwise direction, then the S Drawer Roller slants in the direction of arrow B. This screw is used for removing tape curl at the upper flange of the S Drawer Roller. However, this screw is used only when the tape curls at the flange of the S Drawer Roller, even though the RF output waveform meets the required specification.

(iii) Height adjustment screw

Turn this screw in the clockwise direction, then the height of the S Drawer Roller lowers.

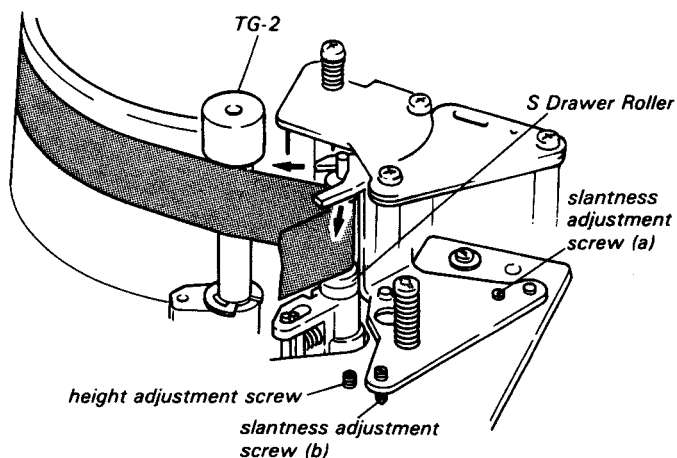


Spec.: <head to tape contact>

$$\frac{A}{B} \geq 0.70 \quad \frac{D}{B} \geq 0.70$$

<fluctuation>

$$\frac{C}{B} \geq 0.90$$



. When tape guides (TG-3, TG-4) are adjusted, loosen the locking screw about 1 turn and adjust the height by turning the height adjustment nut.

. When tracking at the entrance side of the drum is not good.

- (1) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80 % of maximum.
- (2) Adjust the height and the slantness of the S Drawer Roller by turning the height adjustment screw and the slantness adjustment screw (a) until the RF envelope of the entrance side is flat.

NOTE:

(i) Check the surface of the running tape very carefully around the S Drawer Roller. Check that tape tension is equal at the top and bottom of the tape.

(ii) Check that the tape runs in contact with the upper flange of the S Drawer Roller without any curling.

. When tracking at the center of the drum is not good.

(It is required that the Tracking adjustment at the entrance side of the drum is correct before initiating this adjustment.)

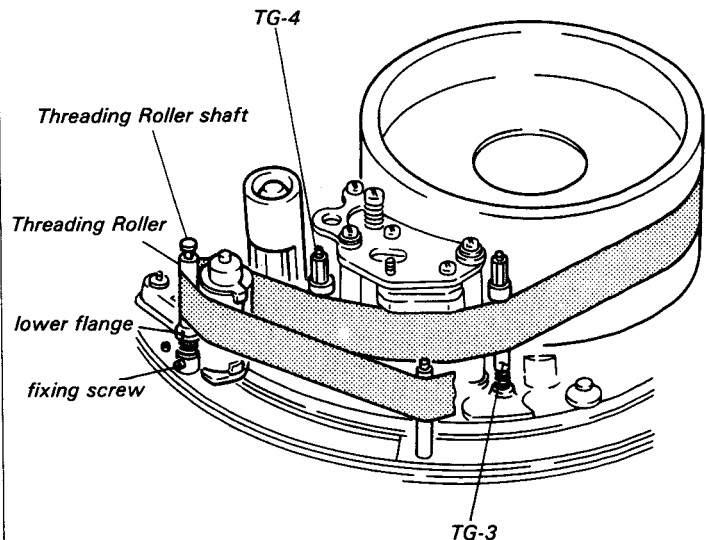
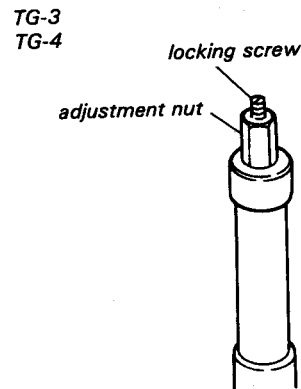
- (3) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.

- (4) Adjust the height and the slantness of the S Drawer Roller by turning the height adjustment screw and the slantness adjustment screw (a) until the RF envelope at the center of the drum is flat.

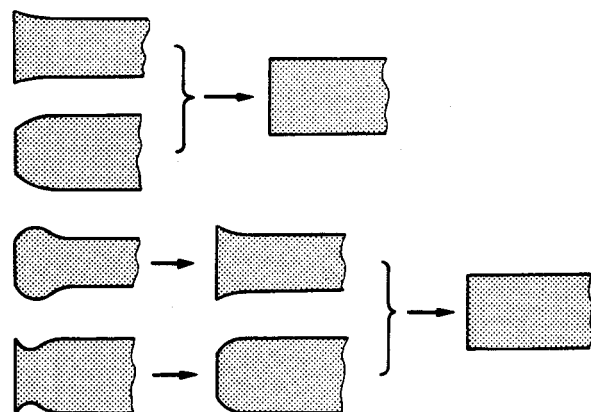
NOTE:

(i) Adjust the slantness adjustment screw (a) in the clockwise direction within a 10 degree angle.

(ii) When the tracking of the center of the drum is adjusted, the RF envelope at the entrance side of the drum should remain flat.



<entrance side>

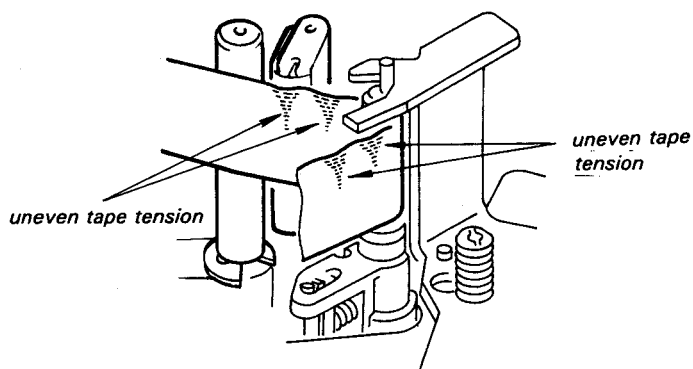
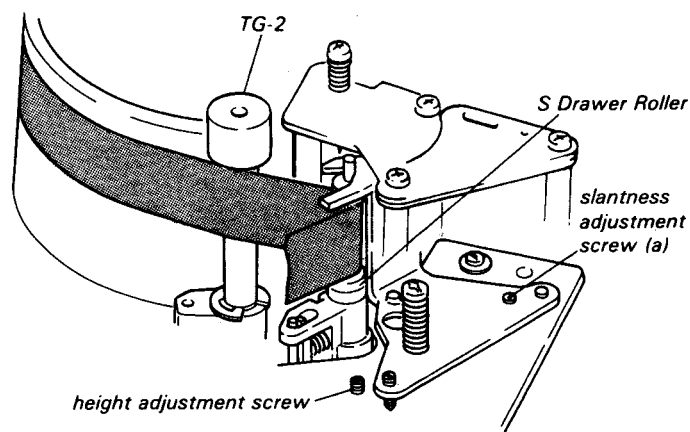


- (iii) Check that the tape runs in contact with the upper flange of the S Drawer Roller without any curling.
- (5) If the RF envelope is not flat in Step (4), adjust the height of TG-3 and TG-4.
- (6) If the RF envelope is not flat in Steps (4) and (5), adjust the zenith of the Audio/CTL Head within the allowable range. Adjust the height of TG-3 and TG-4 again.
- (7) Check that the clearance between the bottom edge of the tape and the lower flange of the Threading Roller is 0.01 mm to 0.15 mm. If it is out of the specification, adjust the height of the Threading Roller by turning the Threading Roller Shaft.

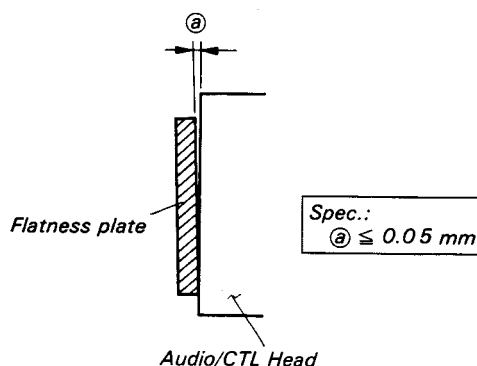
. When loosen the fixing screw of the Threading Roller, press the STOP button. When the Threading Roller comes near the Subring Stopper, turn the power OFF. Loosen the fixing screw of the Threading Roller with a L-shaped hexagonal wrench. After adjustment, tighten the fixing screw and check that it meet the required specification.

. When tracking at the exit side of the drum is not good.

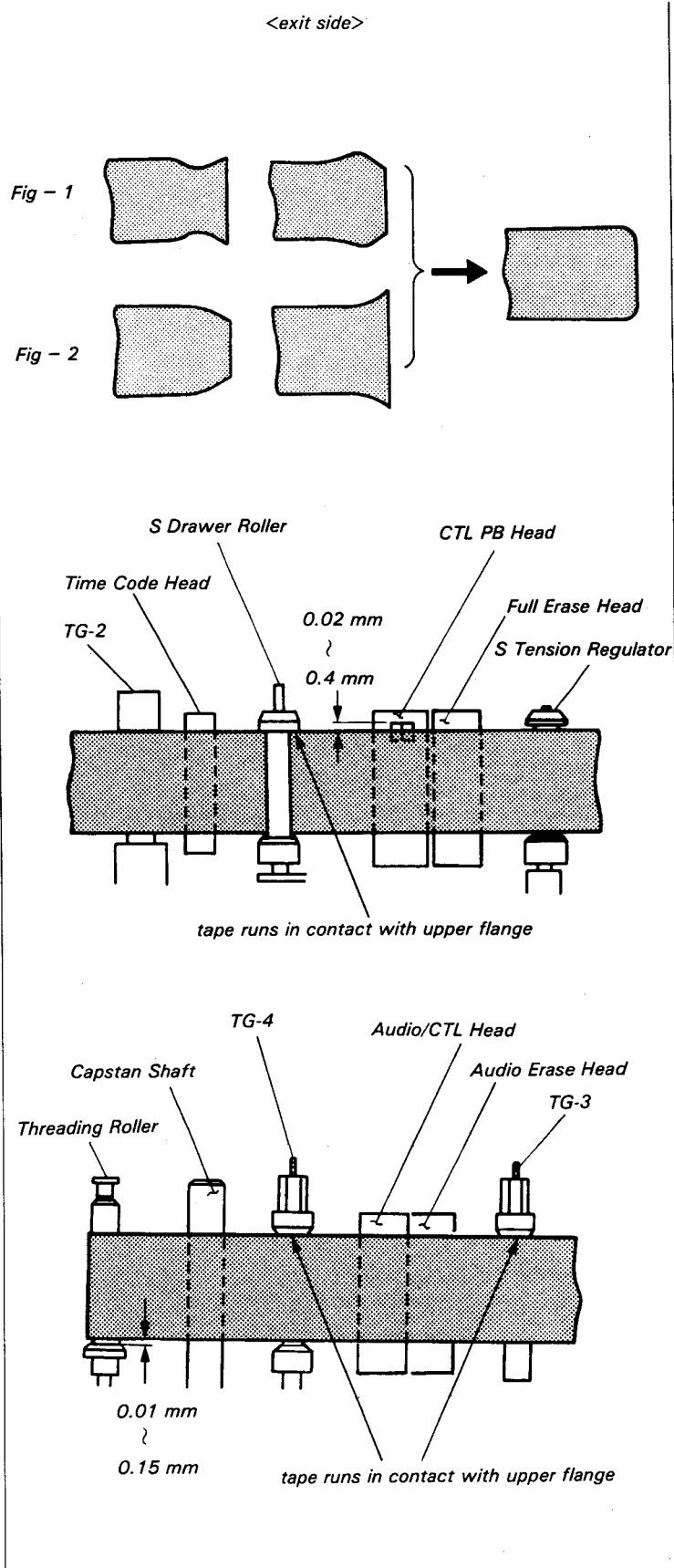
- (8) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.
- (9) If the RF envelope is not flat as shown in the figure 1, adjust the height of TG-4 until the RF envelope is flat. After this adjustment, adjust the height of TG-3 so that the tape runs in contact with the upper flange. If the RF envelope is not flat as shown in the figure 2, adjust the height of TG-3 and TG-4 until the RF envelope is flat. If it is not, adjust the zenith of the Audio/CTL Head within the allowable range. Adjust the height of TG-3 and TG-4 again.



<zenith adjustment for the Audio/CTL Head>



- (10) Check that the clearance between the bottom edge of the tape and the lower flange of the Threading Roller is 0.01 mm to 0.15 mm. If it is out of the specification, adjust the height of the Threading Roller by turning the Threading Roller Shaft.



7-8-2. Full Erase Head Zenith Adjustment

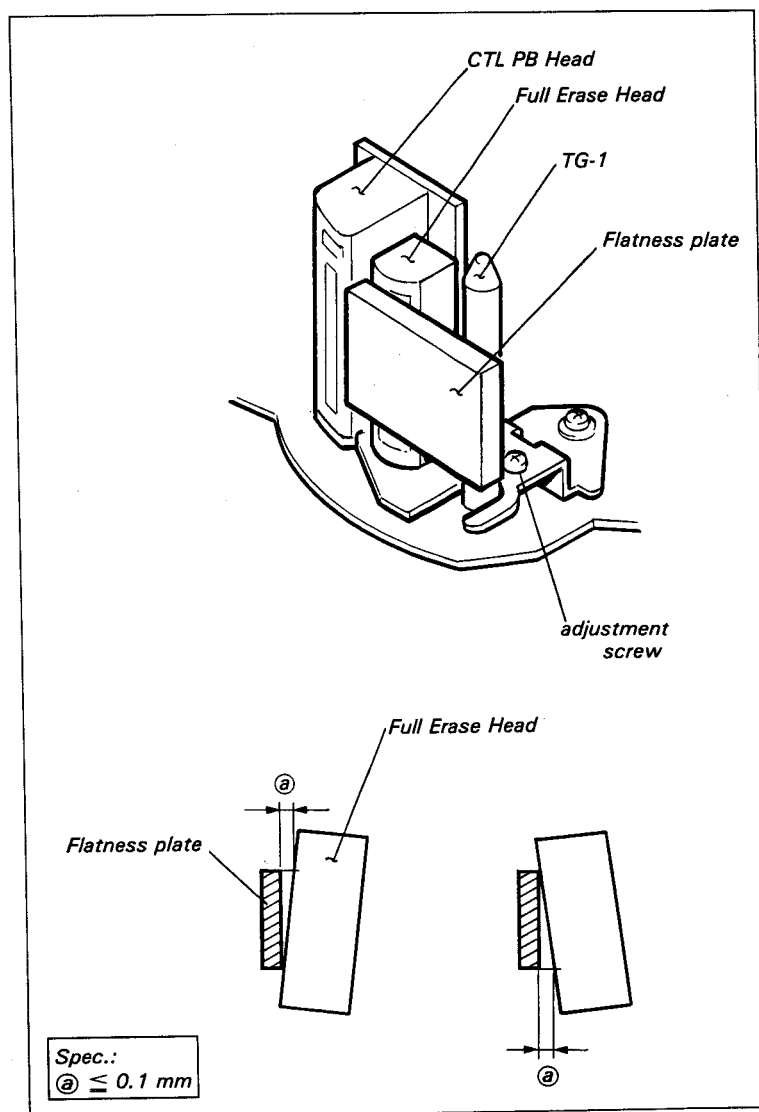
Tool: Flatness plate

Check procedure:

- (1) Check that the clearance between the Full Erase Head and the Flatness Plate meets the required specification, when the Flatness Plate is placed on the Full Erase Head and TG-1.

Adjustment procedure:

- (1) Turn the adjustment screw in the clockwise or counterclockwise direction to meet the required specification.



7-8-3. CTL PB Head Height/Azimuth/Zenith Adjustments

- . The CTL PB Head Height, Azimuth, and Zenith Adjustments are closely related. When performing any of these adjustments, always perform the other two adjustments at the same time.
- . Before initiating this adjustment, perform the Sec. 7-8-2. Full Erase Head Zenith Adjustment.

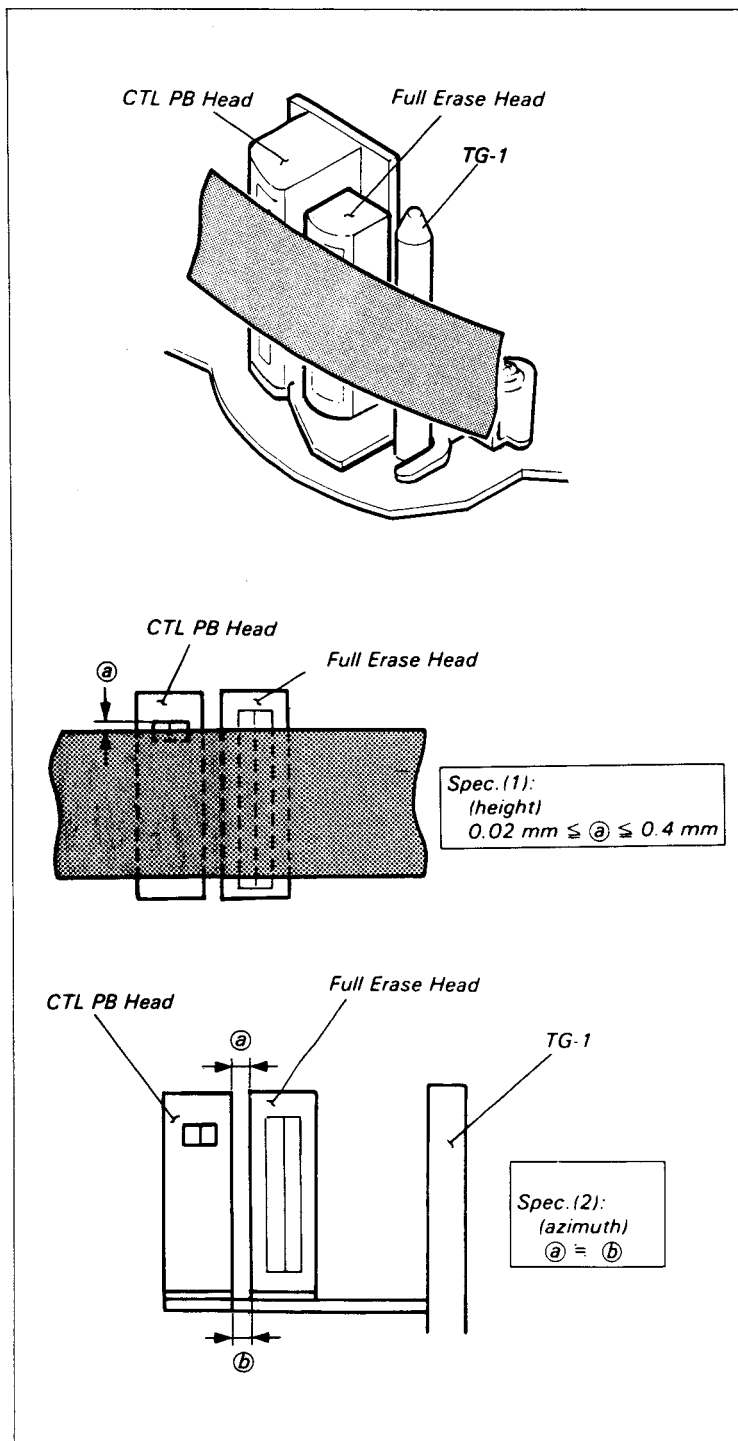
Tool: Flatness plate

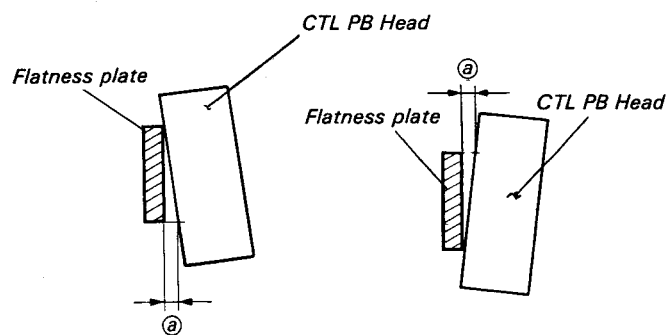
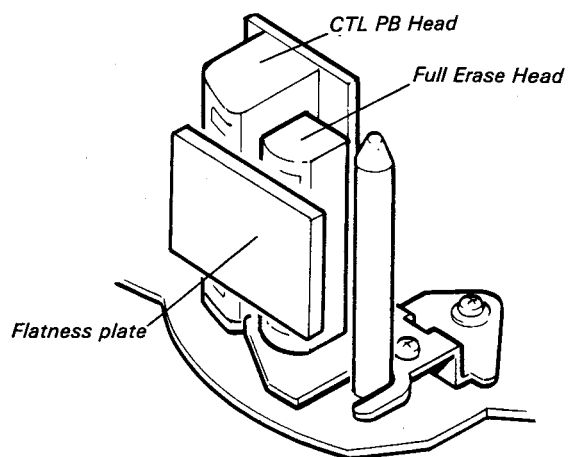
Check procedure:

- (1) Check that top and bottom clearances between the CTL PB Head and Full Erase Head meets the required specification. (Spec. 2 : azimuth check)
- (2) Check that the clearance between the CTL PB Head and the Flatness Plate meets the required specification, when the Flatness Plate is placed on the CTL PB Head and Full Erase Head (Spec. 3 : zenith check)
- (3) Insert a cassette tape, and put the unit into the PLAY mode.
- (4) Check that the relationship between the top edge of tape and the CTL PB Head meets the required specification. (Spec. 1 : height check)

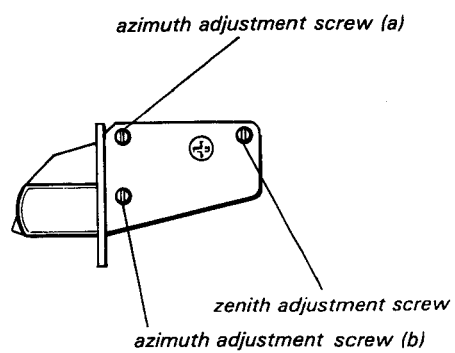
Adjustment procedure:

- (1) Adjust azimuth adjustment screw (a) to meet the required specification (2).
- (2) Adjust zenith adjustment screw to meet the required specification (3).
- (3) Turn the three adjustment screws an equal amount in the clockwise or counterclockwise direction to meet the required specification (1).





Spec. (3):
(zenith)
 $a \leq 0.1 \text{ mm}$



7-8-4. Audio Head Height Adjustment

Tool: Alignment tape, RR5-1SD PAL
VTVM or oscilloscope

Preparation:

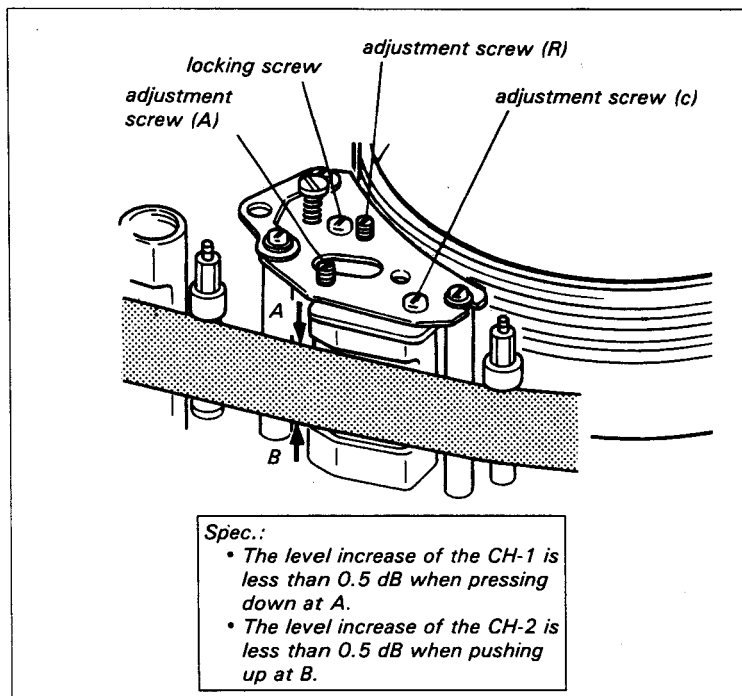
- (1) Connect the VTVM or oscilloscope to the AUDIO OUT CH-1 and CH-2 connectors of the connector panel.
- (2) Playback the audio 1 kHz signal portion of the alignment tape.

Check procedure:

- (1) Check that the CH-1 output level increase is less than 0.5 dB when pressing down at A. If it is out of the specification, perform adjustment procedures (1) and (2).
- (2) Check that the CH-2 output level increase is less than 0.5 dB when pushing up at B. If it is out of the specification, perform adjustment procedures (3) and (4).

Adjustment procedure:

- (1) Loosen the locking screw and turn adjustment screws (R) and (A) an equal amount in the counterclockwise direction. Turn adjustment screw (C) the same amount in the clockwise direction.
- (2) Tighten the locking screw and check the height of the Audio Head as described in the check procedure.
- (3) Loosen the locking screw and turn adjustment screws (R) and (A) an equal amount in the clockwise direction. Turn the adjustment screw (C) the same amount in the counterclockwise direction.
- (4) Tighten the locking screw and check the height of the Audio Head as described in the check procedure.



7-8-5. Audio Head Zenith Adjustment

Tool: Flatness plate

Check procedure:

- (1) When the Flatness Plate is set on the Audio Head and TG-3, check that the clearance between the Audio Head and the Flatness Plate meets the required specification.

Adjustment procedure:

. When the clearance is out of spec. at the top of the Audio Head.

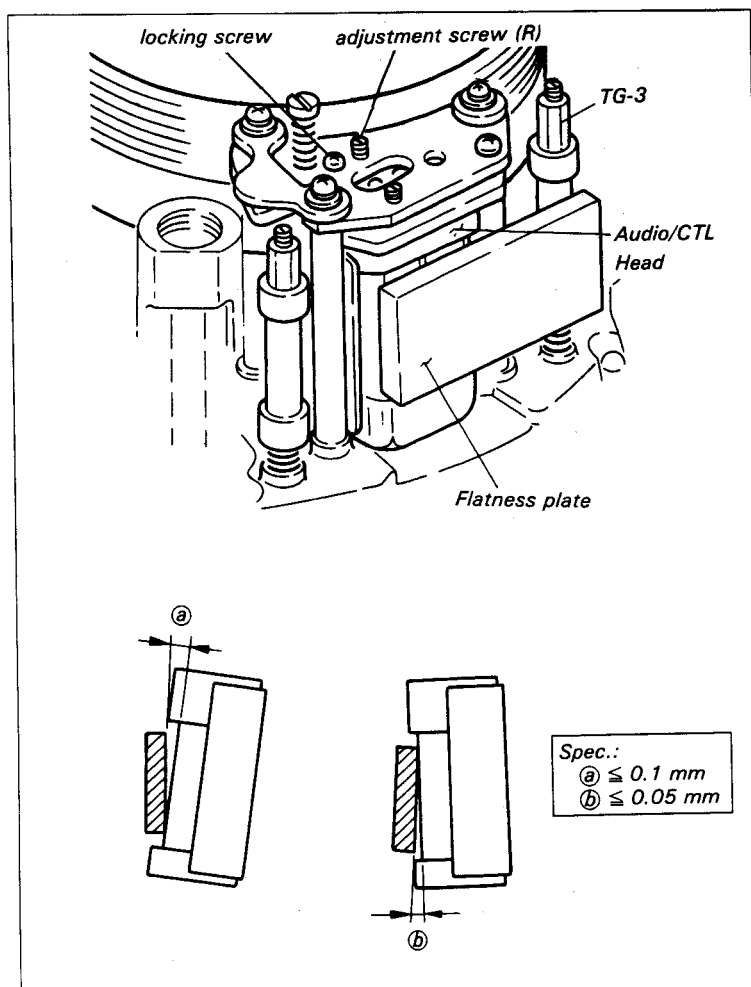
- (1) Turn adjustment screw (R) in the counterclockwise direction.

- (2) Tighten the locking screw and check the zenith again.

. When the clearance is out of spec. at the bottom of the Audio Head.

- (3) Loosen the locking screw 1/4 to 1/2 turn.
- (4) Turn adjustment screw (R) in the clockwise direction.

- (5) Tighten the locking screw and check the zenith again.



7-8-6. Audio Head Azimuth Adjustment

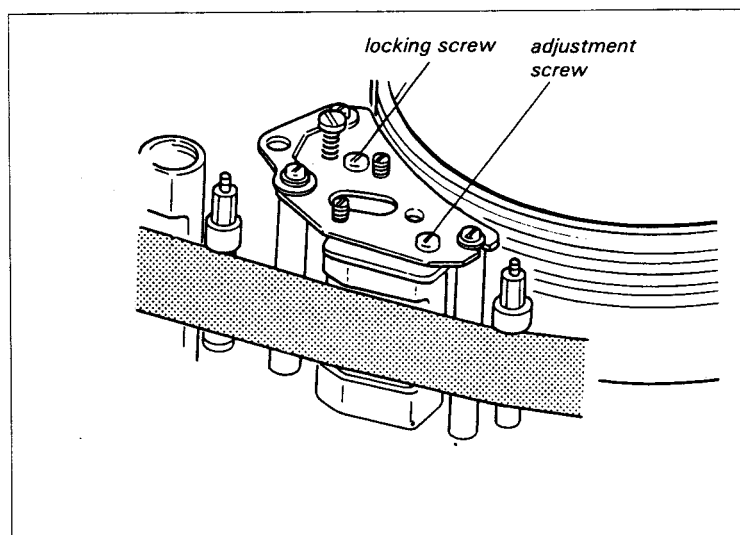
Tool: Alignment tape, RR5-1SD PAL
VTVM or oscilloscope

Preparation:

- (1) Connect the VTVM or oscilloscope to the AUDIO OUT CH-1 or CH-2 connector of the connector panel.
- (2) Playback the audio 10 kHz signal portion of the alignment tape.

Adjustment procedure:

- (1) Loosen the locking screw and adjust the audio output level to maximum by turning the adjustment screw.
- (2) Tighten the locking screw and perform the check procedure.



7-8-7. Audio Head Phase Adjustment

Tool: Alignment tape, RR5-1SD PAL
Oscilloscope

Preparation:

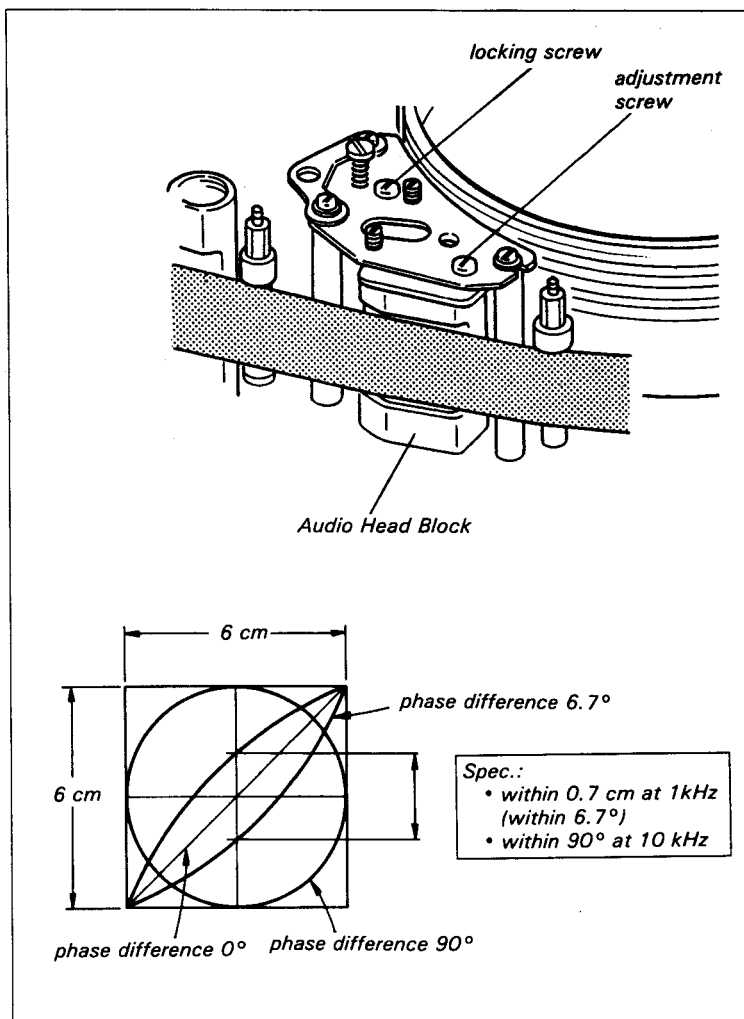
- (1) Connect the horizontal and vertical terminals of the oscilloscope to the AUDIO OUT CH-1 and CH-2 connectors of the connector panel.
- (2) Playback the audio 1 kHz signal portion of the alignment tape.
- (3) Adjust the scope for a lissajous waveform with horizontal and vertical amplitudes of 6 cm.

Check procedure:

- (1) Playback the audio 1 kHz signal portion of the alignment tape, and check that the vertical amplitude at the center in the horizontal direction meets the required specification.
- (2) Playback the audio 10 kHz signal portion of the alignment tape, and check that the lissajous waveform meets the required specification.

Adjustment procedure:

- (1) Loosen the locking screw 1/4 to 1/2 turn and adjust the phase by turning the adjustment screw.
- (2) Tighten the locking screw and check the phase again.



7-8-8. Audio/CTL Head Position Adjustment

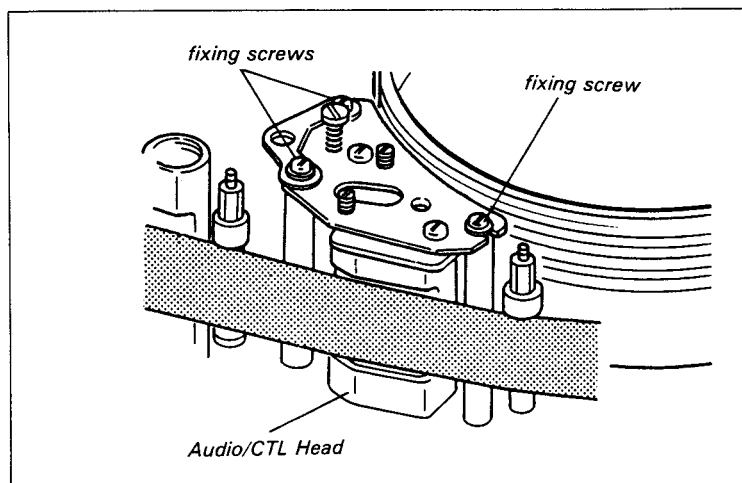
Tool: Alignment tape, RR2-1SD PAL
Oscilloscope
Eccentricity screwdriver (5 mm dia.)

Preparation:

- (1) Connect the oscilloscope to TP18 on the DM-72 Board and the EXT.TRIG to TP12 on the SV-112B Board.
- (2) Playback the alignment tape.

Check procedure:

- (1) While turning the TRACKING control knob, check that the RF envelope has maximum amplitude at the center detent position of the TRACKING control knob.



7-8-9. Time Code Head Height Adjustment

Tool: Alignment tape, RR5-1SD PAL

Oscilloscope

Preparation:

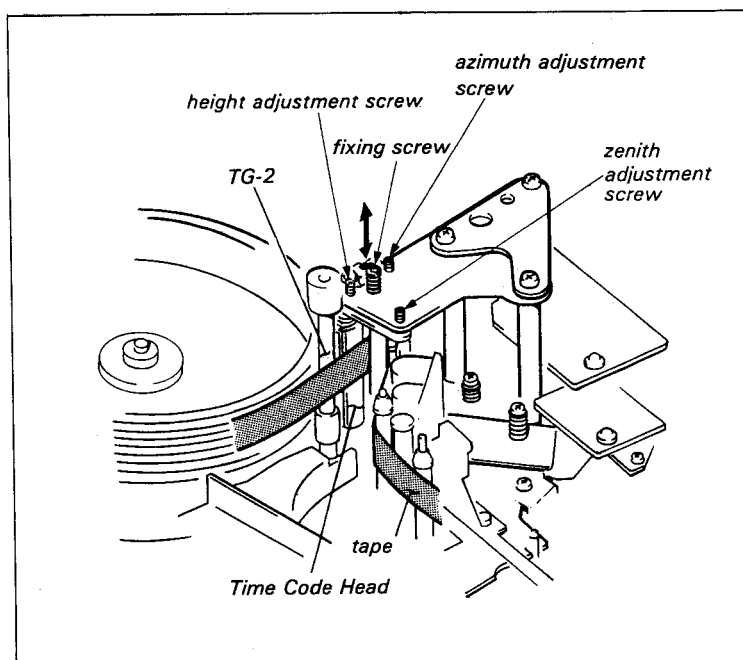
- (1) Connect the oscilloscope to TP405 on the NR-31 Board.
- (2) Playback the time code signal portion of the alignment tape.

Check procedure:

- (1) Check that the level increase is less than 0.5 dB when lightly pressing down or pushing up the fixing screw by hand.

Adjustment procedure:

- (1) Loosen the fixing screw 1/4 to 1/2 turn.
• The level increase is more than 0.5 dB when pushing up the fixing screw.
- (2) Turn the three adjustment screws (Height, Azimuth and Zenith) an equal amount in the counterclockwise direction.
• The level increase is more than 0.5 dB when pressing down the fixing screw
- (3) Turn the three adjustment screws an equal amount in the clockwise direction.
- (4) Tighten the fixing screws and perform the check procedure.
- (5) After adjustment, perform following adjustments:
 Sec.7-3-1. Time Code Head Zenith Adjustment
 Sec.7-3-2. Time Code Head Azimuth Adjustment



7-8-10. Time Code Head Position Adjustment

Tools: Alignment tape, RR5-1SD PAL
Oscilloscope
Eccentric screwdriver (5 mm dia.)

Preparation:

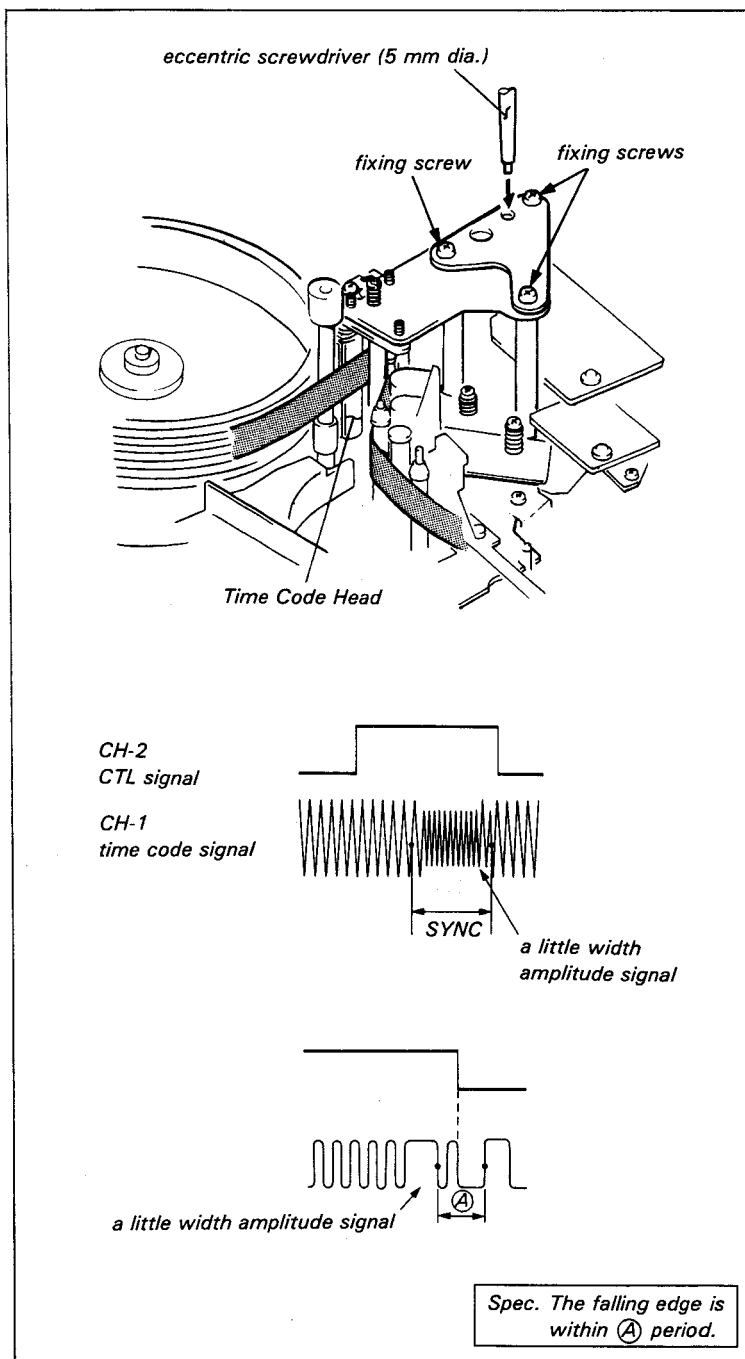
- (1) Connect the oscilloscope as follows.
CH-1 : TP405 / NR-31
CH-2 : TP4 / SV-112B
TRIG : TP4 / SV-112B
- (2) Playback the time code signal portion of the alignment tape.

Check procedure:

- (1) Check that the phase relationship between the CTL signal and the Time Code signal meets the required specification.

Adjustment procedure:

- (1) Loosen the three fixing screws of the Time Code Head Block 1/4 to 1/2 turn.
- (2) Adjust the position of the Time Code Head Block with an eccentric screwdriver to meet the required specification.



7-9. VIDEO HEAD DIHEDRAL ADJUSTMENT

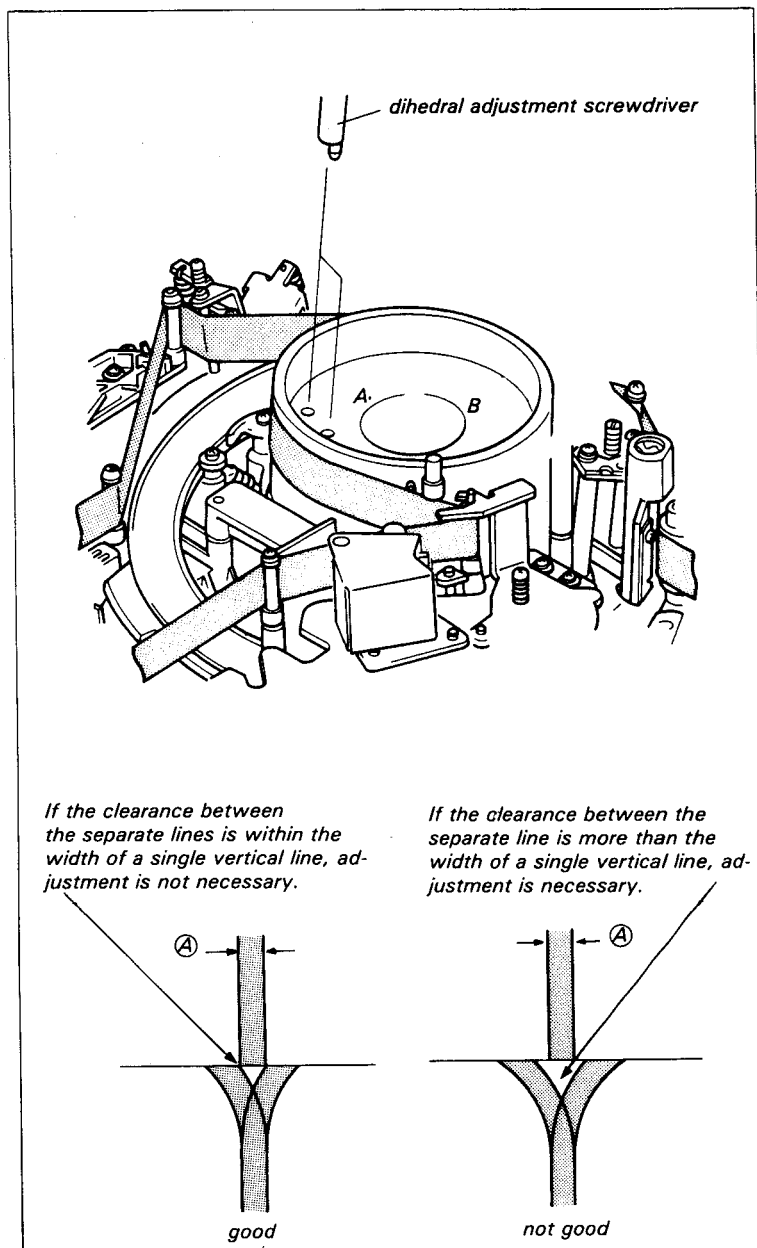
Tool: Dihedral adjustment screwdriver
Alignment tape, RR5-1SD PAL
Monitor TV

Check procedure

- (1) Playback the monoscope signal portion of the alignment tape.
- (2) Check the distortion of the monoscope signal under the switching pulse. If the clearance between the separate lines is within the width of a single vertical line, adjustment is not necessary. If the clearance of the separate lines is more than the width of a vertical line, then adjustment is necessary.

Adjustment procedure:

- (1) Insert an eccentric screwdriver into the adjustment hole of the white lead and perform the dihedral adjustment.
- (2) Play back the monoscope signal portion. If the distortion has become worse, insert an eccentric screwdriver in the other adjustment hole and perform the dihedral adjustment.



SECTION 8

SYSTEM CONTROL ALIGNMENT

[Equipment Required]

- DC Voltmeter.
- Blank Tape.

8-1. TAPE SENSOR BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the cassette tape. • STOP mode	TP4/SY-141B(J-1) $6.0 \pm 0.2 \text{Vdc}$	⚙RV1/SY-141B(J-1)

8-2. REEL MOTOR STILL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Connect the DC voltmeter to the reel motor terminal(orange)and the chassis of the reel chassis block. • Set to the PLAY-PAUSE mode without the cassette tape.	$0.4 \pm 0.02 \text{Vdc}$	⚙RV4/SY-141B(K-1) (Adjust after the reel stops.)

NOTE : Refer to Sec. 6-2 and 6-3 for the adjustment of RV2 and RV3/SY-141B.

SECTION 9

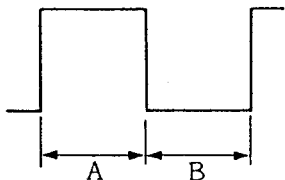
SERVO SYSTEM ALIGNMENT

[Equipment Required]

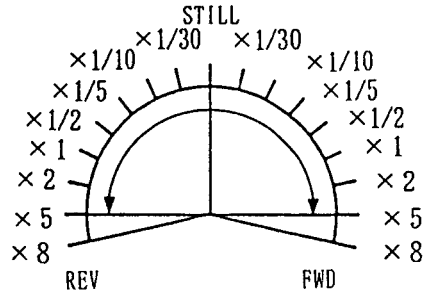
- Dual Trace Oscilloscope.
- Video Monitor
- Blank Tape : KSP-60
- Alignment Tape : RR2-1SD PAL (Part No. 8-960-036-02) -SP tape-
- Alignment Tape : RR5-1SD PAL (Part No. 8-960-036-80) -SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	_____	OFF	_____
3	Gated sweep (B/W)	1kHz, 0dB		_____
3	Gated sweep (color)	10kHz, -10dB		_____
3	Pulse & Bar (color) (MOD 10T and inverted 2T)	1kHz, -20dB		_____
		40Hz, -20dB		_____
		7kHz, -20dB		_____
		10kHz, -20dB		_____
		15kHz, -20dB		_____
3	Monoscope (color)	1kHz, -20dB	ON	_____
		15kHz, -20dB		_____
3	Pseudo color bars	_____	OFF	Time code

9-1. CAPSTAN FREE SPEED ADJUSTMENT

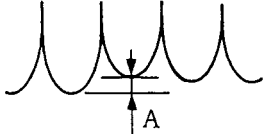
machine conditions for adjustment	specifications	adjustments
Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP3/SV-112B(G-5)  $A = B \pm 5\%$ (Take reading at the center of jitter.)	⚙️RV100/SV-112B(G-6) TRIG: INT

9-2. CAPSTAN 1/30 SPEED ADJUSTMENT

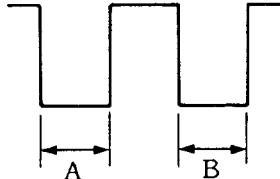
machine conditions for adjustment	specifications	adjustments
- Short between TP11/SY-141B(H-1) and E1/SY-141B(B-1) with a shorting clip. - Play back the color-bar segment of the alignment tape RR5-1SD PAL. - SEARCH mode - Turn the SEARCH dial to the optional position except for FWD×8.	TP27/SV-112B(F-4) $60 \pm 5\text{Hz}$ SEARCH dial 	⚙️RV101/SV-112B(G-4) TRIG: INT

NOTE: Do not remove the shorting clip on the SY-141B board till indicated.

9-3. CAPSTAN STOP SERVO ADJUSTMENT (1)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Short between TP16/SV-112B(H-5) and TP19/SV-112B(H-4) with a shorting clip. • After the adjustment is completed, remove the shorting clip.	TP21/SV-112B(H-4)  $A \leq 0.04V$	RV106/SV-112B(J-4) TRIG : INT

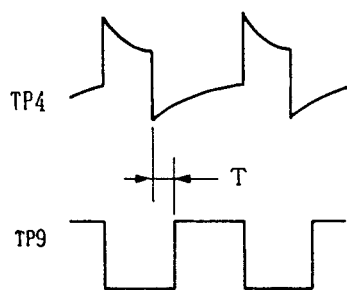
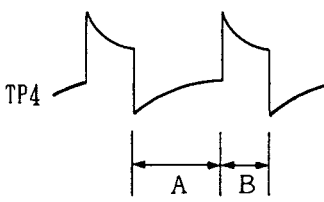
9-4. CAPSTAN STOP SERVO ADJUSTMENT (2)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP25/SV-112B(F-4)  $A = B \pm 10\%$	RV201/SV-112B(J-5) TRIG : INT

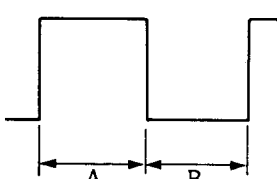
9-5. CAPSTAN STOP SERVO ADJUSTMENT (3)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • PLAY-PAUSE mode • Short between TP6/SV-112B(K-3) and TP22/SV-112B(H-4) with a shorting clip. • After the adjustment is completed, remove the shorting clip.	TP26/SV-112B(E-6)  $A = 1.0 \pm 0.1V_{dc}$	RV107/SV-112B(H-5) TRIG : INT

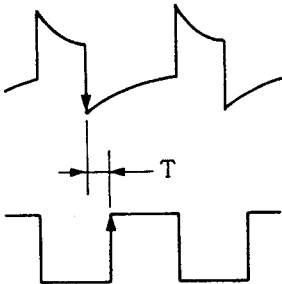
9-6. TRACKING CONTROL MULTI AND CTL POLARITY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- Set the TRACKING control to the center click position. - Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP4/SV-112B(L-6) TP9/SV-112B(L-5) Step 1  $T = 0 \pm 100 \mu\text{sec}$ (Take reading at the center of jitter.) Step 2  $A > B$ (check)	RV406/SV-112B(G-7) TRIG : TP9/SV-112B(L-5)

9-7. DRUM FREE SPEED ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP15/SV-112B(E-7)  $A = B \pm 5\%$	RV402/SV-112B(N-7) TRIG : INT

9-8. INSTANT START ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the TRACKING control to the center click position. • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • SEARCH mode • Turn the SEARCH dial to the FWD×8 position. (Refer to the Sec.9-2 CAPSTAN 1/30 SPEED ADJUSTMENT.) • After the adjustment is completed, remove the shorting clip on the SY-141B board.	TP4/SV-112B(L-6) TP9/SV-112B(L-5)  $T = 0 \pm 1 \text{ msec}$ (Take reading at the center of jitter.)	RV102/SV-112B(H-7) TRIG : TP9/SV-112B(L-5)

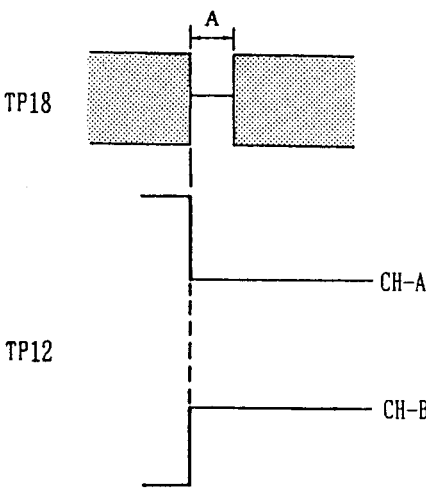
9-9. DRUM AFC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • PLAY and PAUSE modes	TP8/SV-112B (M-6)  NOTE: Magnify the second wave. PLAY mode  PAUSE mode  $A = 0 \pm 0.1 \mu\text{sec}$	RV2/SV-112B (G-7) (If it is difficult to catch the wave, adjust at TRACKING.) TRIG : INT

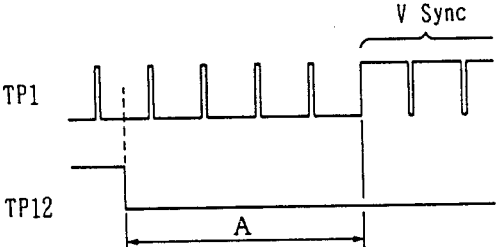
9-10. DRUM AFC TRANSIENT ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • PLAY and PAUSE modes	TP17/SV-112B (D-7) difference between PLAY mode and PAUSE mode $0 \pm 0.1V_{dc}$ [Reference Procedure] ① When PAUSE mode, set the wave of TP17 to the center position of oscilloscope by DC. ② Adjust RV1 so as to set to the same position of PAUSE mode in five seconds when PLAY mode.	ⒶRV1/SV-112B (F-7) TRIG : INT

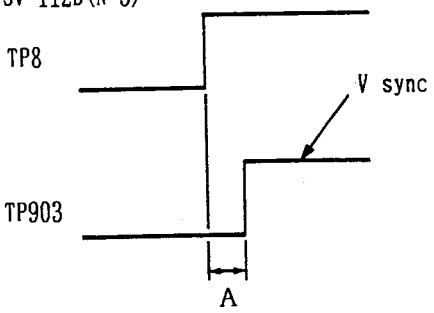
9-11. SWITCHING POSITION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Short between TP5/SV-112B (M-7), TP8/SV-112B (M-6) and GND with shorting clips. • Play back the alignment tape RR2-1 SD PAL. • Adjust the TRACKING volume so that the RF output wave can be maximum. Step 2. • Change the trigger of oscilloscope to (+) and (-). • After the adjustment is completed, remove the shorting clips.	TP18/DM-72 (C-7) TP12/SV-112B (C-7)  $A \leq 10 \mu\text{sec}$	CH-A : ⒶRV405/SV-112B (J-7) CH-B : ⒶRV404/SV-112B (M-6) TRIG : TP12/SV-112B (C-7)

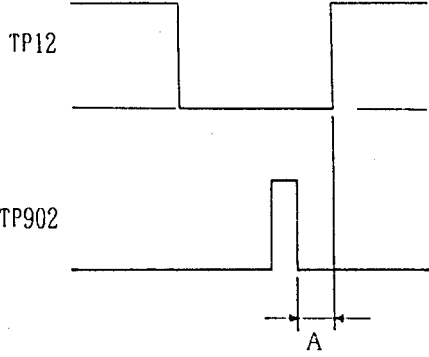
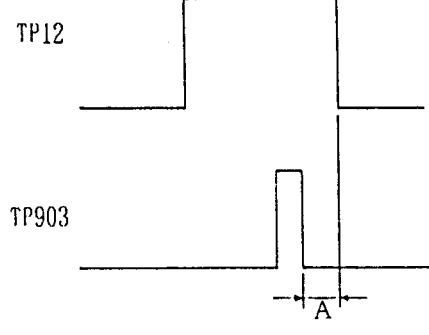
9-12. DRUM LOCK PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector: color-bar • INPUT SELECT SW: LINE • Insert the KSP-60 tape. • Short between TP8 (M-6), TP5 (M-7) and E3 (N-7) /SV-112B with shorting clips. • REC mode • After the adjustment is completed, remove the shorting clips.	TP1/SV-112B (N-5) TP12/SV-112B (C-7)  $A = 2.25 \pm 0.2H$ • Change to the trigger (-) side of oscilloscope, and then confirm to meet the specification.	RV402/SV-112B (N-7) TRIG: TP12/SV-112B (C-7)

9-13. REC VD ADJUSTMENT

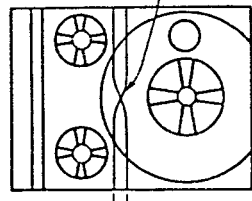
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector: color-bar • INPUT SELECT SW : LINE • Insert the KSP-60 tape. • REC mode	TP8/SV-112B (M-6) TP903/SV-112B (N-5)  $A = 0 \pm 5 \mu\text{sec}$ (Take reading at the center of jitter.)	RV900/SV-112B (N-6)

9-14. ROTARY ERASE MUTE PULSE ADJUSTMENT

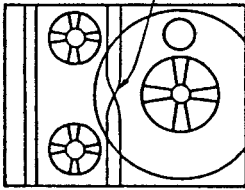
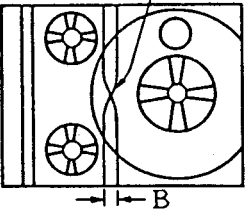
machine conditions for adjustment	specifications	adjustments
Play back the pseudo color-bar segment of the alignment tape RR5-1SD PAL.	CH-1 : TP12/SV-112B (C-7) CH-2 : TP902/SV-112B (E-2), CH-A TP903/SV-112B (N-5), CH-B CH-A  CH-B  $A = 3.0 \pm 0.05 \text{msec}$	CH-A : ⦿RV854/SV-112B (F-2) CH-B : ⦿RV853/SV-112B (F-2) TRIG : CH-1

9-15. PICTURE SPLITTING COMPENSATOR ADJUSTMENT

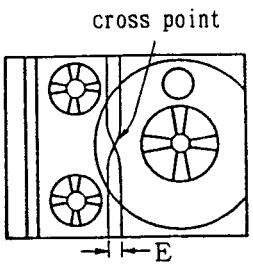
Step 1.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : monoscope (B/W) • Set the KCA or KCS cassette tape. • REC mode • After the adjustment is completed, record continuously.	TP904/SV-112B (C-3) Oscilloscope  Minimize the A level.	RV851/SV-112B (C-2)
• Connect with the clip cord (with $33k\Omega$ resistor) between TP905/SV-112B (H-7) and TP2/SV-112B (E-7). • Play back the self recorded tape.	Monitor  cross point $B \leq 0.5 \mu\text{sec}$ If the specification is not satisfied, confirm the cross point and perform the Step 2 and 3.	

Step 2.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : monoscope (B/W) • Play back the self recorded tape.	Monitor cross point  1. Turn RV851/SV-112B (C-2) temporarily and make the cross point large. 2. Set the cross point to the position checked in the Step 1.	●RV850/SV-112B (B-2)
	Monitor cross point  Minimize B. NOTE : Check the level of TP904/SV-112B (C-3). This level is C Vp-p.	●RV851/SV-112B (C-2)
	TP904/SV-112B (C-3)  $D = \frac{1}{2} C V_{p-p}$	●RV851/SV-112B (C-2)

Step 3.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : monoscope (B/W) • Set the KCA or KSP cassette tape. • Play back the self recorded tape again. • After the check is completed, remove the clip cord with resistor.	Monitor  $E \leq 0.5 \mu\text{sec}$	

- If the specification is not satisfied, readjust Steps 1 and 2.

SECTION 10

AUDIO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- Frequency Counter.
- Audio Oscillator.
- AC Voltmeter.
- Audio Attenuator.
- Blank Tape : KCA, KCS and KSP. (When adjusting, use KCA and KCS unless otherwise specifically indicated.)
- Alignment Tape : RR5-1SD PAL (Part No. 8-960-036-80) -SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	—	OFF	—
3	Gated sweep(B/W)	1kHz, 0dB		—
3	Gated sweep(color)	10kHz, -10dB		—
3	Pulse & Bar(color) (MOD 10T and inverted 2T)	1kHz, -20dB		—
		40Hz, -20dB		—
		7kHz, -20dB		—
		10kHz, -20dB		—
		15kHz, -20dB		—
3	Monoscope(color)	1kHz, -20dB	ON	—
		15kHz, -20dB		—
3	Pseudo color bars	—	OFF	Time code

[NOTE]

- 0dBu=0.775Vrms

[Switch Setting]

Front Panel

- AUDIO LIMITER sw OFF

Do not move this switch unless otherwise specified.

10-1. EE LEVEL ADJUSTMENT

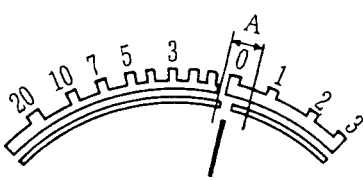
machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu - EE mode	CH-1 : TP13/NR-31(A-1) CH-2 : TP113/NR-31(B-1) GND : E11/NR-31(D-1) $-10.0 \pm 0.2 \text{ dBu}$	- CH-1 AUDIO LEVEL control - CH-2 AUDIO LEVEL control

NOTE : This position should not be moved till the Audio System Alignment is completed.

10-2. EE LINE OUT LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu - EE mode	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) $+4.0 \pm 0.3 \text{ dBm}$	CH-1: ⌚RV11/NR-31(A-1) CH-2: ⌚RV111/NR-31(B-1)

10-3. AUDIO LEVEL METER ADJUSTMENT

Conditions for adjustment	Specifications	Adjustments
- AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu - EE mode	AUDIO LEVEL meter  $A = 0 \pm 0.5 \text{ dB}$	CH-1: ⌚RV51/AU-124(C-5) CH-2: ⌚RV251/AU-124(C-5)

10-4. LIMITER LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- MIC IN CH-1, CH-2 : 1kHz, -30dBu - EE mode - AUDIO LIMITER SW : ON	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) $+7.0 \pm 0.3 \text{ dBm}$	CH-1: ⌚RV1/AU-124(D-3) CH-2: ⌚RV201/AU-124(D-3)

10-5. ALIGNMENT TAPE PB FREQUENCY RESPONSE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments												
• Play back the audio frequency response segment of the alignment tape RR5-1SD PAL.	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) <table><tr><th>Frequency</th><th>Level</th></tr><tr><td>40 Hz</td><td>0 ±3dB</td></tr><tr><td>1 kHz</td><td>0 dB(REF)</td></tr><tr><td>7 kHz</td><td>0 ±0.5dB</td></tr><tr><td>10 kHz</td><td>0 ^{+0.4}_{-0.6} dB</td></tr><tr><td>15 kHz</td><td>0 ^{+0.4}_{-1.0} dB</td></tr></table>	Frequency	Level	40 Hz	0 ±3dB	1 kHz	0 dB(REF)	7 kHz	0 ±0.5dB	10 kHz	0 ^{+0.4} _{-0.6} dB	15 kHz	0 ^{+0.4} _{-1.0} dB	CH-1: • 7kHz Level ⊗RV102/AU-124(J-5) • 15kHz Level ⊗RV103/AU-124(J-4) ⊗RV154/AU-124(J-5) CH-2: • 7kHz Level ⊗RV302/AU-124(H-5) • 15kHz Level ⊗RV303/AU-124(H-3) ⊗RV354/AU-124(H-6)
Frequency	Level													
40 Hz	0 ±3dB													
1 kHz	0 dB(REF)													
7 kHz	0 ±0.5dB													
10 kHz	0 ^{+0.4} _{-0.6} dB													
15 kHz	0 ^{+0.4} _{-1.0} dB													

10-6. ALIGNMENT TAPE PB LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the audio 1kHz, 0dB segment of the alignment tape RR5-1SD PAL.	CH-1 : TP13/AU-124(A-1) CH-2 : TP113/AU-124(B-1) -10.0 ±0.2dBu	CH-1 : ⒶRV104/AU-124(J-3) CH-2 : ⒶRV304/AU-124(J-3)

10-7. ALIGNMENT TAPE PB LINE OUT LEVEL CHECK

machine conditions for adjustment	specifications	adjustments
• Play back the audio 1kHz, 0dB segment of the alignment tape RR5-1SD PAL.	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) +4.0 ±0.5dBm	

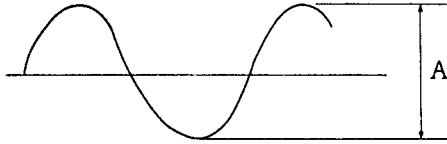
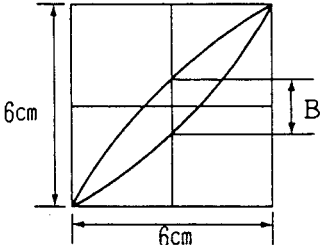
10-8. DOLBY DETECT DC BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• STOP mode	CH-1 : between TP314/NR-31 (M-1) and TP315/NR-31 (M-1) CH-2 : between TP316/NR-31 (N-1) and TP317/NR-31 (M-1) DC voltage difference = $0 \pm 0.1\text{Vdc}$	CH-1 : ⌚RV315/NR-31 (N-1) CH-2 : ⌚RV316/NR-31 (M-1)

10-9. DOLBY DETECT LEVEL ADJUSTMENT

Conditions for adjustment	Specifications	Adjustments
• STOP mode	TP318/NR-31 (K-1) E211/NR-31 (L-1) DC voltage = $3.5 \pm 0.05\text{Vdc}$	⌚RV317/NR-31 (K-1)

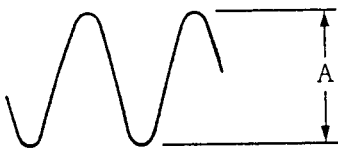
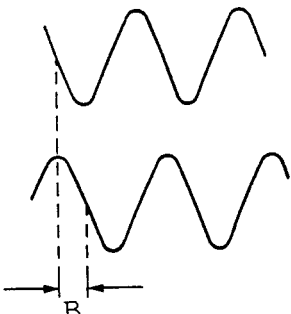
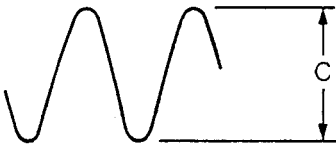
10-10. PB PILOT TONE PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the AUDIO NR ON segment of the alignment tape RR5-1SD PAL.	TP312/NR-31 (K-1) TP313/NR-31 (L-1)  $A = 0.5^{+0.1}_{-0} V_{p-p}$	⌚RV313/NR-31 (K-1) ⌚RV314/NR-31 (M-1)
• Connect CH-1 of oscilloscope to TP311/NR-31 (L-1), and CH-2 of oscilloscope to TP312/NR-31 (K-1) to be displayed Lissajous' wave. Adjust the X and Y axes' amplitude. • After the adjustment is completed, connect the oscilloscope to TP311/NR-31 (L-1) and TP313/NR-31 (L-1), and then perform the same check.	 Phase Difference : direction of 0° or 180° B = less than 1.5cm (15°)	⌚RV312/NR-31 (L-1)

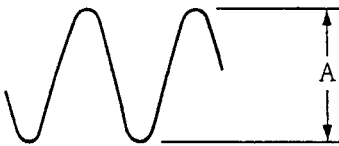
10-11. FULL ERASE OSC. LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	TP601/AU-124 (A-5) GND : E601/AU-124 (A-4) Level : $220 \pm 30 \text{mVrms}$ (Check) Frequency : $71 \pm 2 \text{kHz}$	●RV604/AU-124 (B-1)

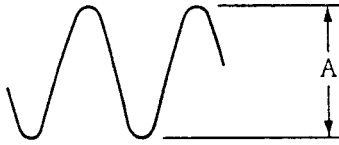
10-12. AUDIO ERASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	Step 1. CH-1 : TP701/AU-124 (F-1) CH-2 : TP723/AU-124 (M-1)  Maximize the A level. Step 2. CH-1 : TP701 CH-2 : TP723  $B = 0 \pm 15^\circ$ ($0 \pm 0.6 \mu\text{s}$) Step 3. CH-1 : TP702/AU-124 (F-2) CH-2 : TP705/AU-124 (N-2)  After performing the Step 2, there is no warp on C. $C = 12 \pm 1.0 \text{Vp-p}$	CH-1 : ●LV701/AU-124 (E-1) CH-2 : ●LV702/AU-124 (L-1) • Adjust from the component side. CH-1 : ●RV401/AU-124 (F-1) CH-2 : ●RV402/AU-124 (M-1)

10-13. BIAS TUNING ADJUSTMENT (1)

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	CH-1 : TP707/AU-124 (D-1) CH-2 : TP710/AU-124 (K-1)  Maximize the A level.	CH-1 : ● LV703/AU-124 (D-1) CH-2 : ● LV705/AU-124 (K-1) • Adjust from the component side.

10-14. BIAS TUNING ADJUSTMENT (2)

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	CH-1 : TP709/AU-124 (B-1) CH-2 : TP712/AU-124 (H-1)  Maximize the A level.	CH-1 : ● LV704/AU-124 (B-2) CH-2 : ● LV706/AU-124 (J-2) • Adjust from the component side.

10-15. BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KSP-60 tape. • REC mode	CH-1 : TP151/AU-124 (K-7) GND : E151/AU-124 (H-6) CH-2 : TP351/AU-124 (G-6) GND : E151/AU-124 (H-7) Minimize the level, (less than -10dBu)	CH-1 : ● LV151/AU-124 (J-6) CH-2 : ● LV351/AU-124 (J-6) • Adjust from the component side.

10-16. REC BIAS CURRENT ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KSP-60 tape. • REC mode	CH-1 : TP101/AU-124(J-7) GND : TP102/AU-124(J-7) CH-2 : TP301/AU-124(H-7) GND : TP302/AU-124(H-6) $12.0 \pm 0.5 \text{mVrms}$	CH-1 : ⓈRV403/AU-124(D-1) CH-2 : ⓈRV405/AU-124(K-1)

10-17. REC BIAS CURRENT ADJUSTMENT (CONV TAPE)

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KCA-60 tape. • REC mode	CH-1 : TP101/AU-124(J-7) GND : TP102/AU-124(J-7) CH-2 : TP301/AU-124(H-7) GND : TP302/AU-124(H-6) $9.0 \pm 0.5 \text{mVrms}$	CH-1 : ⓈRV404/AU-124(D-1) CH-2 : ⓈRV406/AU-124(L-1)

10-18. INSERT BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KSP-60(no signal) tape. • CH-1, CH-2 INSERT mode	CH-1 : TP103/AU-124(H-4), CH-1 INSERT mode GND : E151/AU-124(H-7) CH-2 : TP303/AU-124(G-5), CH-2 INSERT mode GND : E151/AU-124(H-7) Minimize the level. (less than -10dBu)	CH-1 : ⓈLV101/AU-124(J-6) • Adjust from the component side. CH-2 : ⓈLV301/AU-124(J-6) • Adjust from the component side.

10-19. REC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2 : 1kHz, -16dBu - Insert the KSP-60 tape. - REC mode - AUDIO LIMITER SW : OFF - Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a shorting clip. - After the adjustment is completed, remove the shorting clip.	CH-1: TP152/AU-124(K-6) GND : E151/AU-124(H-7) CH-2: TP352/AU-124(H-6) GND : E151/AU-124(H-7) -16±1dBu	CH-1 : ⒶRV152/AU-124(K-4) CH-2 : ⒶRV352/AU-124(G-3)

10-20. CH-1 REC EQ ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments
Step 1. - AUDIO LINE IN CH-1 : 1kHz, -16dBu - Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a shorting clip. - Turn RV151/AU-124(K-4) fully clockwise. - Insert the KSP-60 tape. - REC mode	TP152/AU-124(K-6) GND : E151/AU-124(H-7) Read the value of AC voltmeter. This value is A dBu.	
Step 2. - AUDIO LINE IN CH-1 : 21kHz, -16dBu - Continue the state of Step 1. - After the adjustment is completed, remove the shorting clip.	TP152/AU-124(K-6) GND : E151/AU-124(H-7) ⒶMaximize the level. ⒷA(Step 1) + 21±0.5dB	Ⓐ ⒶLV152/AU-124(K-4) • Adjust from the component side. Ⓑ ⒶRV151/AU-124(K-4)

10-21. CH-2 REC EQ ADJUSTMENT (SP TAPE)

Conditions for adjustment	Specifications	Adjustments
Step 1. • AUDIO LINE IN CH-2 : 1kHz, -16dBu • Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a shorting clip. • Turn RV351/AU-124(G-3) fully clockwise. • Insert the KSP-60 tape. • REC mode	TP352/AU-124(H-6) GND : E151/AU-124(G-7) Read the value of AC voltmeter. This value is A dBu.	
Step 2. • AUDIO LINE IN CH-2 : 21kHz, -16dBu • Continue the state of Step 1. • After the adjustment is completed, remove the shorting clip.	TP352/AU-124(H-6) GND : E151/AU-124(G-7) ① Maximize the level. ② A (Step 1) + 21 ± 0.5dBu	① ● LV352/AU-124(G-3) • Adjust from the component side. ② ● RV351/AU-124(G-3)

10-22. CH-1 OVERALL FREQUENCY RESPONSE ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments																
Step 1. • AUDIO LINE IN : 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-16dBu • DOLBY SW : OFF • Insert the KSP-60 tape. • Record each frequency for 15 seconds. • Rewind and play back the recorded portion.	AUDIO LINE OUT CH-1(terminated by 600Ω) <table><tr><th>Frequency</th><th>Level</th></tr><tr><td>40 Hz</td><td>0 ±3dB</td></tr><tr><td>90 Hz</td><td>0 ±2dB</td></tr><tr><td>1 kHz</td><td>0 dB(REF)</td></tr><tr><td>3 kHz</td><td>0 ±0.9dB</td></tr><tr><td>7 kHz</td><td>0 ±0.9dB</td></tr><tr><td>10 kHz</td><td>0 ^{+0.8}_{-1.0} dB</td></tr><tr><td>15 kHz</td><td>0 ^{+0.6}_{-1.2} dB</td></tr></table>	Frequency	Level	40 Hz	0 ±3dB	90 Hz	0 ±2dB	1 kHz	0 dB(REF)	3 kHz	0 ±0.9dB	7 kHz	0 ±0.9dB	10 kHz	0 ^{+0.8} _{-1.0} dB	15 kHz	0 ^{+0.6} _{-1.2} dB	
Frequency	Level																	
40 Hz	0 ±3dB																	
90 Hz	0 ±2dB																	
1 kHz	0 dB(REF)																	
3 kHz	0 ±0.9dB																	
7 kHz	0 ±0.9dB																	
10 kHz	0 ^{+0.8} _{-1.0} dB																	
15 kHz	0 ^{+0.6} _{-1.2} dB																	
Step 2.	When 7~15kHz doesn't meet the specification: 1. AUDIO LINE IN : no signal 2. Measure the value of TP101/AU-124(J-7) (GND : TP102/AU-124(J-7)) by AC voltmeter. 3. Insert the KSP-60 tape. 4. REC mode 5. Readjust the bias current at RV403/AU-124 (D-1) with in the limits of 8~15mVrms. NOTE: When the high frequency is lower than the specification, lower the bias voltage. 6. Perform Step 1 and then confirm that the frequency response meets the specification. When 15kHz doesn't meet the specification: 1. Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a shorting clip. 2. Measure the value of TP152/AU-124(K-6) (GND : E151/AU-124(H-7) by AC voltmeter. 3. AUDIO LINE IN CH-1 : 15kHz, -16dBm 4. Insert the KSP-60 tape. 5. REC mode. Read the value of the AC voltmeter (A dBu). 6. Add to A for the level which doesn't meet the specification of 15kHz. 7. Readjust the value of 5. at RV151/AU-124 (K-5). 8. Perform Step 1 and confirm that the frequency response meets the specification.																	

10-23. CH-2 OVERALL FREQUENCY RESPONSE ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments																
Step 1. • AUDIO LINE IN: 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-16dBu • DOLBY SW : OFF • Insert the KSP-60 tape. • Record each frequency for 15 seconds. • Rewind and play back the recorded portion.	AUDIO LINE OUT CH-2(terminated by 600Ω) <table><tr><th>Frequency</th><th>Level</th></tr><tr><td>40 Hz</td><td>0 ±3dB</td></tr><tr><td>90 Hz</td><td>0 ±2dB</td></tr><tr><td>1 kHz</td><td>0 dB(REF)</td></tr><tr><td>3 kHz</td><td>0 ±0.9dB</td></tr><tr><td>7 kHz</td><td>0 ±0.9dB</td></tr><tr><td>10 kHz</td><td>0 ^{+0.8}_{-1.0} dB</td></tr><tr><td>15 kHz</td><td>0 ^{+0.6}_{-1.2} dB</td></tr></table>	Frequency	Level	40 Hz	0 ±3dB	90 Hz	0 ±2dB	1 kHz	0 dB(REF)	3 kHz	0 ±0.9dB	7 kHz	0 ±0.9dB	10 kHz	0 ^{+0.8} _{-1.0} dB	15 kHz	0 ^{+0.6} _{-1.2} dB	
Frequency	Level																	
40 Hz	0 ±3dB																	
90 Hz	0 ±2dB																	
1 kHz	0 dB(REF)																	
3 kHz	0 ±0.9dB																	
7 kHz	0 ±0.9dB																	
10 kHz	0 ^{+0.8} _{-1.0} dB																	
15 kHz	0 ^{+0.6} _{-1.2} dB																	
Step 2.	When 7~15kHz doesn't meet the specification: 1. AUDIO LINE IN: no signal 2. Measure the value of TP301/AU-124(H-7) (GND : TP302/AU-124(H-6)) by AC voltmeter. 3. Insert the KSP-60 tape. 4. REC mode 5. Readjust the bias current at RV405/AU-124 (K-1) with in the limits of 8~15mVms. NOTE: When the high frequency is lower than the specification, lower the bias voltage. 6. Perform Step 1 and then confirm that the frequency response meets the specification. When 15kHz doesn't meet the specification: 1. Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a shorting clip. 2. Medasure the value of TP352/AU-124(H-6) (GND : E151/AU-124(H-7)) by AC voltmeter. 3. AUDIO LINE IN CH-2: 15kHz, -16dBm 4. Insert the KSP-60 tape. 5. REC mode. Read the value of the AC volt- meter (A dBu). 6. Add to A for the level which doesn't meet the specification of 15kHz. 7. Readjust the value of the Step 5 at RV352/AU-124(G-2). 8. Perform Step 1 and confirm that the frequency response meets the specification.																	

10-24. CONVENTIONAL TAPE OVERALL FREQUENCY RESPONSE CHECK

machine conditions for adjustment	specifications	adjustments																
• AUDIO LINE IN CH-1, CH-2 : 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-16dBu • Insert the KCA-60 tape. • Record each frequency for 20 seconds. • Rewind and play back the recorded portion.	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) <table><tr><th>Frequency</th><th>Level</th></tr><tr><td>40 Hz</td><td>0 ⁺³₋₄ dB</td></tr><tr><td>90 Hz</td><td>0 ±2dB</td></tr><tr><td>1 kHz</td><td>0 dB(REF)</td></tr><tr><td>3 kHz</td><td>0 ±1.5dB</td></tr><tr><td>7 kHz</td><td>0 ±1.5dB</td></tr><tr><td>10 kHz</td><td>0 ^{+1.4}_{-1.6} dB</td></tr><tr><td>15 kHz</td><td>0 ^{+1.7}_{-2.3} dB</td></tr></table>	Frequency	Level	40 Hz	0 ⁺³ ₋₄ dB	90 Hz	0 ±2dB	1 kHz	0 dB(REF)	3 kHz	0 ±1.5dB	7 kHz	0 ±1.5dB	10 kHz	0 ^{+1.4} _{-1.6} dB	15 kHz	0 ^{+1.7} _{-2.3} dB	
Frequency	Level																	
40 Hz	0 ⁺³ ₋₄ dB																	
90 Hz	0 ±2dB																	
1 kHz	0 dB(REF)																	
3 kHz	0 ±1.5dB																	
7 kHz	0 ±1.5dB																	
10 kHz	0 ^{+1.4} _{-1.6} dB																	
15 kHz	0 ^{+1.7} _{-2.3} dB																	

NOTE : When not to meet the specification, perform Sec. 10-17 REC BIAS CURRENT ADJUSTMENT(CONV TAPE).
When the high frequency is lower than the specification, lower the bias voltage.

10-25. REC LEVEL ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu - Insert the KSP-60 tape. - REC mode⇔PB mode PB mode : check REC mode : Adjustment	CH-1 : TP13/NR-31(A-1) CH-2 : TP113/NR-31(B-1) -10±0.3dBu After the adjustment is completed, confirm the AUDIO LINE OUT CH-1, CH-2 level. (terminated by 600Ω) +4.0±0.3dBm	CH-1 : ⓈRV152/AU-124(K-4) CH-2 : ⓈRV352/AU-124(G-3)

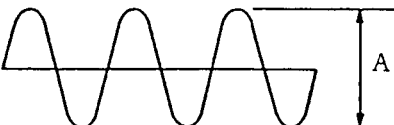
10-26. REC LEVEL ADJUSTMENT (CONV TAPE)

machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu - Insert the KCA-60 tape. - REC mode⇔PB mode PB mode : check REC mode : Adjustment	CH-1 : TP13/NR-31(A-1) CH-2 : TP113/NR-31(B-1) $-10 \pm 0.5 \text{dBu}$ After the adjustment is completed, confirm the AUDIO LINE OUT CH-1, CH-2 level. (terminated by 600Ω) $+4.0 \pm 0.5 \text{dBm}$	CH-1 : ●RV153/AU-124(K-4) CH-2 : ●RV353/AU-124(F-3)

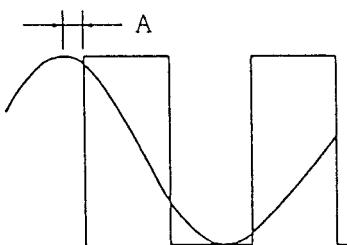
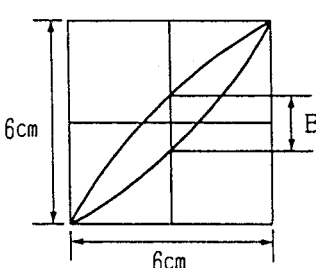
10-27. CROSSTALK CANCELER ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. CH-1 Insert Adjustment - AUDIO LINE IN CH-1 : 5kHz, +4dBu - Insert the KSP-60 tape(no signal) with CTL. - CH-1 Insert mode.	AUDIO LINE OUT CH-2(terminated by 600Ω) Minimize the level. (less than -18dBm)	●RV301/AU-124(K-5)
Step 2. CH-2 Insert Adjustment - AUDIO LINE IN CH-2 : 5kHz, +4dBu - Insert the KSP-60 tape(no signal) with CTL. - CH-2 Insert mode.	AUDIO LINE OUT CH-1(terminated by 600Ω) Minimize the level. (less than -18dBm)	●RV101/AU-124(L-7)

10-28. OA PILOT TONE LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2: no signal - DOLBY SW: ON - Insert the KSP-60 tape. - REC mode	CH-1 : TP152/AU-124(K-6) GND : E151/AU-124(H-7) CH-2 : TP352/AU-124(H-6) GND : E151/AU-124(H-7) Adjust to $-22 \pm 1\text{dBu}$ temporarily.	CH-1 : ⌚RV211/NR-31(F-1) CH-2 : ⌚RV212/NR-31(F-1)
- Record for 10 seconds. - Rewind and play back the recorded portion.	CH-1 : TP312/NR-31(K-1) GND : E211/NR-31(L-1) CH-2 : TP313/NR-31(L-1) GND : E211/NR-31(L-1)  $A = 0.6 \pm 0.05\text{V}$	CH-1 : ⌚RV211/NR-31(F-1) CH-2 : ⌚RV212/NR-31(F-1)

10-29. OA PILOT TONE PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2: no signal - DOLBY SW: ON - Insert the KSP-60 tape. - REC mode	CH-1: TP311/NR-31(L-1) GND: E211/NR-31(L-1) CH-2: TP211/NR-31(H-1) GND: E211/NR-31(L-1)  (Adjust) $A = 0 \pm 2.7\text{msec}$ temporarily.	●RV311/NR-31(L-1)
- Record for 10 seconds. - Rewind and play back the recorded portion - PB→Check REC→Adjustment	CH-1: TP311/NR-31(L-1) CH-2: TP312/NR-31(K-1)  Perform the fine tuning so as to be $B \leq 1.5\text{cm}$ (15°). Adjust performing PB and REC repeatedly.	●RV311/NR-31(L-1) TRIG: TP311/NR-31(L-1)

SECTION 11

VIDEO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- PAL signal generator (TEKTRONIX1411 or equivalent).
- Vectorscope.
- DC voltmeter.
- Frequency counter.
- Video sweep signal generator.
- Spectrum analyzer.
- Cassette Tape : KCA, KCS and KSP.
- Alignment Tape : RR5-1SD PAL (Part No. 8-960-036-80)
-SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	—	OFF	—
3	Gated sweep (B/W)	1kHz, 0dB		—
3	Gated sweep (color)	10kHz, -10dB		—
3	Pulse & Bar (color) (MOD 10T and inverted 2T)	1kHz, -20dB		—
		40Hz, -20dB		—
		7kHz, -20dB		—
		10kHz, -20dB		—
		15kHz, -20dB		—
3	Monoscope (color)	1kHz, -20dB	ON	—
		15kHz, -20dB		—
3	Pseudo color bars	—	OFF	Time code

- Alignment Tape : RR5-2SB PAL (Parts No. 8-960-020-62)
-High-band tape-

TIME	VIDEO	AUDIO	TIME CODE
5	color bars	3kHz, 0dB	1kHz
5	R-F sweep	—	—
5	Monoscope	—	—
2.5	Modulated 20T pulse	1kHz, 0dB	—
2.5	R-F 8MHz	10kHz, -10dB	—

- Alignment Tape : RR5-2SC PAL (Part No. 8-960-035-61)
-Low-band tape-

REAL TIME Counter (min)	TAPE COUNTER	VIDEO TRACK	AUDIO TRACK
00:00-04:00	000-100	Monoscope	3kHz, 0dB
04:00-09:00	100-208	Color-bar	—
09:00-14:00	208-300	R-F sweep	—
14:00-16:00	300-335	Mod. 20T pulse	1kHz, 0dB
16:00-18:00	335-367	Monoscope (color)	10kHz, -10dB
18:00-20:00	367-398	Pseudo C. B. for DOC adj.	—

[Switch Setting]

Front Panel

- VIDEO LEVEL sw AUTO
- INPUT SELECT sw LINE

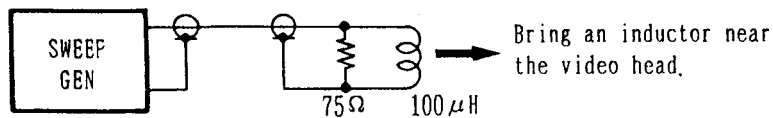
Connector Panel

- VIDEO IN 75 Ω sw ON

Do not move these switches unless otherwise specified.

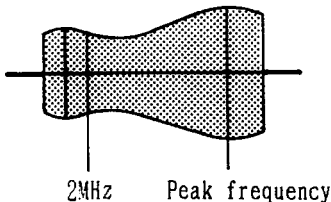
11-1. PB RF FREQUENCY RESPONSE ADJUSTMENT (1)

To make this adjustment, the head drum rotation is stopped without a cassette tape, and the sweep signal is L-coupled to the video head using an inductor (approximately $100\mu\text{H}$).

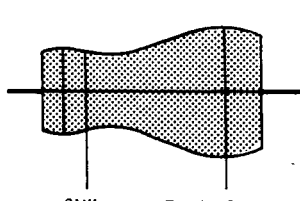


Sweep signal band width: 1 to 10MHz

Step1. CH-A RF frequency response adjustment

machine conditions for adjustment	specifications	adjustments				
• Short between TP3/DM-72 (D-6) and GND with a shorting clip. • Short between 1 Pin:IC1/DM-72 (E-8) and GND (E2) with a shorting clip. • Short between TP8/MD-60 (G-5) and TP9/MD-60 (G-5) with a shorting clip. • Couple a sweep signal to the video head(CH-A). • Adjust the sweep signal generator output so that the signal level in about 250mVp-p. • After the adjustment is completed, remove the shorting clips.	TP7/RP-40B (D-1)  <table><tr><td>2MHz</td><td>Peak frequency</td></tr><tr><td>100% (reference)</td><td>120±5%</td></tr></table>	2MHz	Peak frequency	100% (reference)	120±5%	RV4/RP-40B (D-2) TRIG : Trigger output/ sweep generator
2MHz	Peak frequency					
100% (reference)	120±5%					

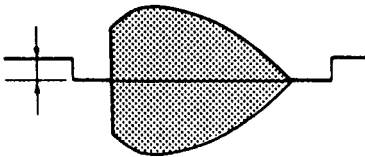
Step2. CH-B RF frequency response adjustment

machine conditions for adjustment	specifications	adjustments				
• Short between TP3/DM-72 (D-6) and GND with a shorting clip. • Short between 1 Pin:IC1/DM-72 (E-8) and GND (E2) with a shorting clip. • Short between TP8/MD-60 (G-5) and TP9/MD-60 (G-5) with a shorting clip. • Couple a sweep signal to the video head (CH-B). • Adjust the sweep signal generator output so that the signal level is about 250mVp-p. • After the adjustment is completed, remove the shorting clips.	TP10/RP-40B (D-1)  <table><tr><td>2MHz</td><td>Peak frequency</td></tr><tr><td>100% (reference)</td><td>120±5%</td></tr></table>	2MHz	Peak frequency	100% (reference)	120±5%	RV6/RP-40B (D-1) TRIG : Trigger output/ sweep generator
2MHz	Peak frequency					
100% (reference)	120±5%					

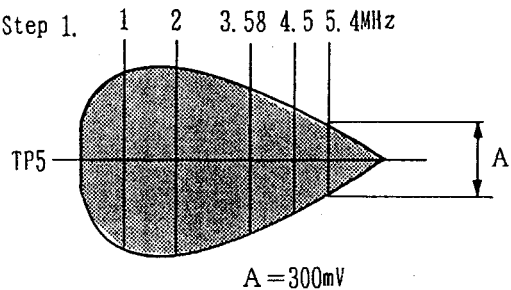
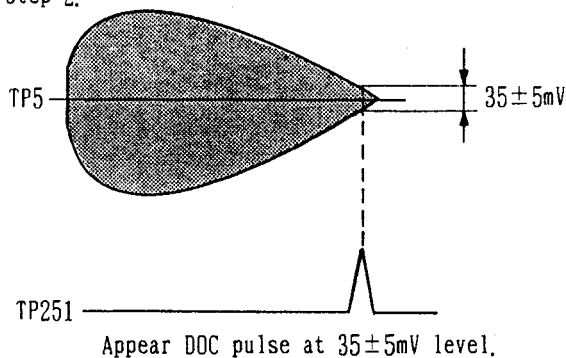
11-2. AUDIO BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Insert the tape on which only a CTL signal is recorded (Video signal is not being recorded on the tape). • AUDIO CH-1 INSERT mode.	TP511/DM-72(B-5) Minimize the bias leak A. 	●LV501/DM-72(B-6)

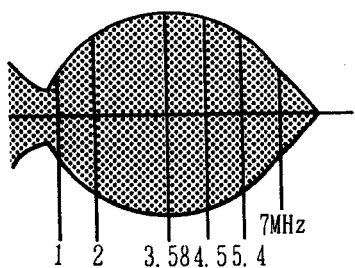
11-3. RF AMPLIFIER DC BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Short between TP8/SV-112B(M-6) and GND with a shorting clip. • Play back the RF sweep segment of the alignment tape RR5-2SB PAL. • Fully turn RV1/DM-72(C-7) counter-clockwise from the component side. • After the adjustment is completed, remove the shorting clip.	TP17/DM-72(C-8)  Equalize the dc level in both channels.	●RV1/DM-72(C-7) TRIG : TP4/DM-72(D-7)

11-4. DROPOUT COMPENSATION SENSITIVITY ADJUSTMENT

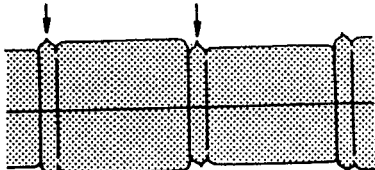
machine conditions for adjustment	specifications	adjustments
• Play back the RF sweep segment of the alignment tape RR5-2SB PAL. • Short between TP8/SV-112B(M-6) and GND with a shorting clip.	CH-1 : TP5/DM-72 (F-9) CH-2 : TP251/DM-72 (F-7) Step 1.  A = 300mV Step 2.  TP251 Appear DOC pulse at 35 ± 5mV level.	Step 1. ●RV5/DM-72 (B-8) Step 2. ●RV251/DM-72 (E-7) TRIG : TP4/DM-72 (D-7)

11-5. PB RF FREQUENCY RESPONSE ADJUSTMENT (2)

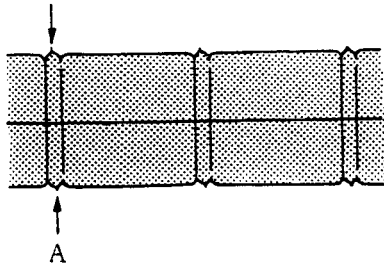
machine conditions for adjustment	specifications	adjustments						
• Short between TP8/SV-112B(M-6) and GND with a shorting clip. • Play back the RF sweep segment of the alignment tape RR5-2SB PAL. • Maximize the RF level at TP5/DM-72 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position and remove the shorting clip.	TP3/DM-72 (D-6)  <table border="1"> <tr> <td>2MHz</td><td>4.5MHz</td><td>7MHz</td></tr> <tr> <td>100% (reference)</td><td>(80) ± 10%</td><td>55 ± 4%</td></tr> </table>	2MHz	4.5MHz	7MHz	100% (reference)	(80) ± 10%	55 ± 4%	CH-A : ●RV3/DM-72 (A-7) CH-B : ●RV2/DM-72 (C-7) TRIG : TP4/DM-72 (D-7)
2MHz	4.5MHz	7MHz						
100% (reference)	(80) ± 10%	55 ± 4%						

After this adjustment is completed, confirm the section 11-6. Y RF OUTPUT BALANCE ADJUSTMENT and the section 11-7. Y RF OUTPUT LEVEL ADJUSTMENT.

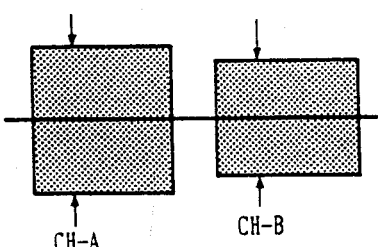
11-6. Y RF OUTPUT BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Maximize the RF level at TP5/DM-72 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP5/DM-72 (F-9)  CH-A CH-B Sync tip level in CH-A = Sync tip level in CH-B $\pm 5\%$	RV17/DM-72 (D-8) TRIG : TP4/DM-72 (D-7)

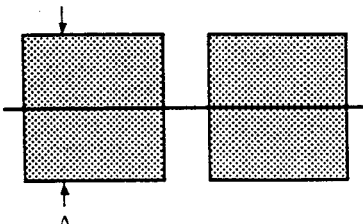
11-7. Y RF OUTPUT LEVEL TENTATIVE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Maximize the RF level at TP5/DM-72 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP5/DM-72 (F-9)  $A = 0.30 \pm 0.04V$	RV5/DM-72 (B-8) TRIG : TP4/DM-72 (D-7)

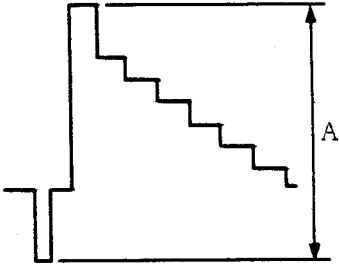
11-8. PB CHROMA RF BALANCE TENTATIVE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Maximize the RF level at TP511/DM-72 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP511/DM-72 (B-5)  CH-A level = CH-B level (Difference between CH-A and B = within 5%)	RV4/DM-72 (D-8) TRIG : TP4/DM-72 (D-7)

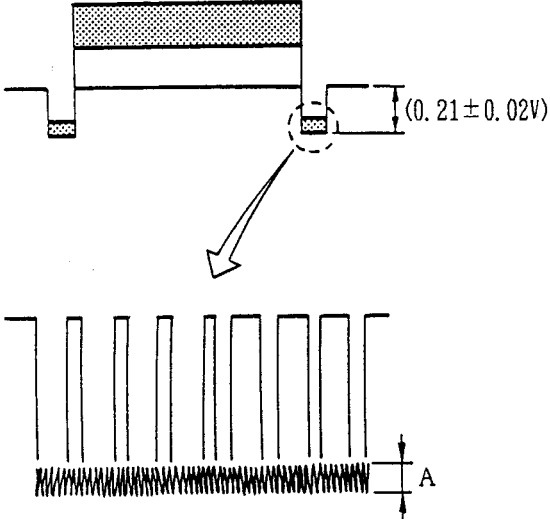
11-9. PB CHROMA RF LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Maximize the RF level at TP511/DM-72 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP511/DM-72 (B-5)  $A = 0.2 \pm 0.01V$	RV503/DM-72 (B-5) TRIG : TP4/DM-72 (D-7)

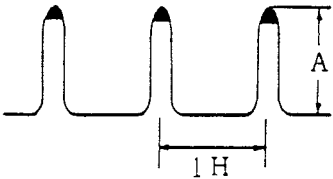
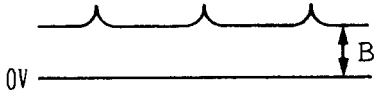
11-10. PB Y OUTPUT LEVEL TENTATIVE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP15/DM-72 (H-4)  $A = 0.7 \pm 0.05V$	SP mode : RV11/DM-72 (H-8) High-band mode : RV16/DM-72 (H-8)
Step 2. • Play back the color-bar segment of the alignment tape RR5-2SB PAL.		

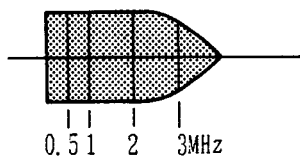
11-11. CARRIER BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-2SB PAL.	TP14/DM-72 (L-6)  Minimize the A level ($A \leq 80mV$)	RV8/DM-72 (E-9) TRIG : TP4/DM-72 (D-7)

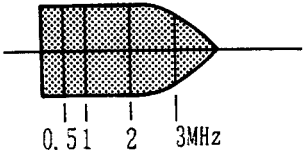
11-12. SP MODE DETECTION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- Desolder the bridge on SL2/DM-72 (E-5). - Play back the color-bar segment of the alignment tape RR5-2SB PAL.	TP301/DM-72 (E-5)  Maximize the A level	⌚ LV301/DM-72 (E-5)
- Solder the solder bridge. - Play back the color-bar segment of the alignment tape RR5-2SB PAL.	 $B = 2.0 \pm 0.1V$	⌚ RV302/DM-72 (E-5)
Play back the color-bar segment of the alignment tape RR5-1SD PAL.	Confirm that the SP lamp on the front panel lights.	

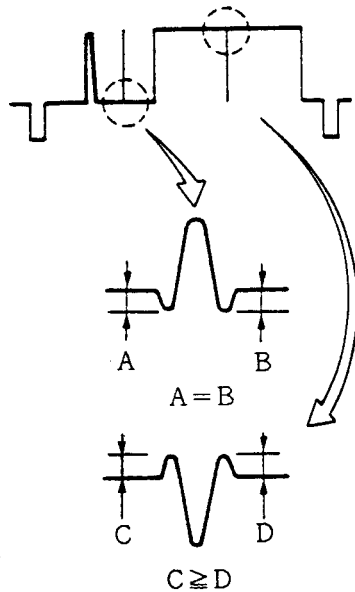
11-13. DUB Y PB FREQUENCY RESPONSE ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments								
• Play back the gated sweep (B/W) segment of the alignment tape RR5-1SD PAL.	TP801/DM-72 (F-4)  <table><tr><th>0.5MHz</th><th>1MHz</th><th>2MHz</th><th>3MHz</th></tr><tr><td>100% (reference)</td><td>$\left(\begin{smallmatrix} 100 \\ \pm 5\% \end{smallmatrix} \right)$</td><td>$\left(\begin{smallmatrix} 100 \\ \pm 5\% \end{smallmatrix} \right)$</td><td>$\begin{smallmatrix} 90 \\ \pm 5\% \end{smallmatrix}$</td></tr></table> Read the levels at the moire peak.	0.5MHz	1MHz	2MHz	3MHz	100% (reference)	$\left(\begin{smallmatrix} 100 \\ \pm 5\% \end{smallmatrix} \right)$	$\left(\begin{smallmatrix} 100 \\ \pm 5\% \end{smallmatrix} \right)$	$\begin{smallmatrix} 90 \\ \pm 5\% \end{smallmatrix}$	⌚ CV2/DM-72 (L-7) TRIG : TP4/DM-72 (D-7)
0.5MHz	1MHz	2MHz	3MHz							
100% (reference)	$\left(\begin{smallmatrix} 100 \\ \pm 5\% \end{smallmatrix} \right)$	$\left(\begin{smallmatrix} 100 \\ \pm 5\% \end{smallmatrix} \right)$	$\begin{smallmatrix} 90 \\ \pm 5\% \end{smallmatrix}$							

11-14. Y PB FREQUENCY RESPONSE ADJUSTMENT (HIGH-BAND MODE)

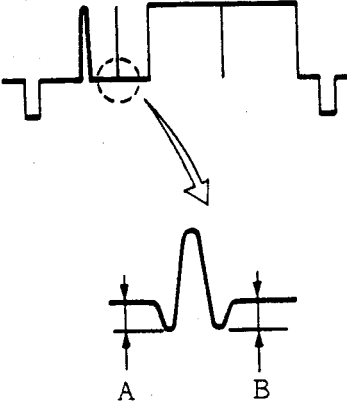
machine conditions for adjustment	specifications	adjustments								
• Play back the normally recorded "Gated sweep signal" on KCA or KCS tape.	TP15/DM-72 (H-4)  <table><tr><td>0.5MHz</td><td>1MHz</td><td>2MHz</td><td>3MHz</td></tr><tr><td>100% (reference)</td><td>$\left(\begin{matrix} 100 \\ \pm 5\% \end{matrix} \right)$</td><td>$\left(\begin{matrix} 100 \\ \pm 5\% \end{matrix} \right)$</td><td>$\begin{matrix} 80 \\ \pm 10\% \end{matrix}$</td></tr></table> Read the levels at the moire peak.	0.5MHz	1MHz	2MHz	3MHz	100% (reference)	$\left(\begin{matrix} 100 \\ \pm 5\% \end{matrix} \right)$	$\left(\begin{matrix} 100 \\ \pm 5\% \end{matrix} \right)$	$\begin{matrix} 80 \\ \pm 10\% \end{matrix}$	● CV1/DM-72 (L-7) TRIG : TP4/DM-72 (D-7)
0.5MHz	1MHz	2MHz	3MHz							
100% (reference)	$\left(\begin{matrix} 100 \\ \pm 5\% \end{matrix} \right)$	$\left(\begin{matrix} 100 \\ \pm 5\% \end{matrix} \right)$	$\begin{matrix} 80 \\ \pm 10\% \end{matrix}$							

11-15. Y PHASE EQUALIZING TENTATIVE ADJUSTMENT (SP MODE)

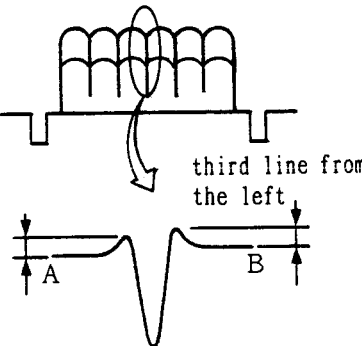
machine conditions for adjustment	specifications	adjustments
Play back the pulse and bar segment of the alignment tape RR5-1SD PAL.	TP15/DM-72 (H-4)  Spec 1. Spec 2. A = B C ≥ D	Spec 1. ● LV1/DM-72 (K-7) Spec 2. ● RV810/DM-72 (B-8)

NOTE : After adjustment by RV810, perform Sec.11-6 Y RF OUTPUT BALANCE ADJUSTMENT, and Sec.11-7 Y RF OUTPUT LEVEL ADJUSTMENT.

11-16. Y PHASE EQUALIZING ADJUSTMENT (HIGH-BAND MODE)

machine conditions for adjustment	specifications	adjustments
Play back the MOD 20T signal on alignment tape RR5-2SB PAL.	TP15/DM-72 (H-4)  Minimize A, within the limits of specification. $B < A \leq 2B$	RV12/DM-72 (K-9)

11-17. Y PHASE EQUALIZING PRE-ADJUSTMENT (LOW-BAND MODE)

machine conditions for adjustment	specifications	adjustments
Play back the MOD 20T signal on alignment tape RR5-2SC PAL.	TP15/DM-72 (H-4)  third line from the left $A = B$	RV551/DM-72 (K-7)

11-18. DUB Y OUTPUT LEVEL ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP801/DM-72 (F-4) NOTE : When noise appears at TP801/DM-72 (F-4), measure the level in the center of noise.	●RV11/DM-72 (H-8) TRIG : TP4/DM-72 (D-7)

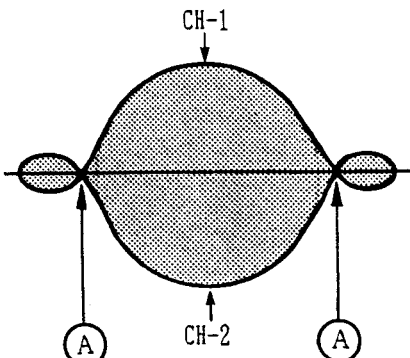
11-19. DUB Y OUTPUT LEVEL ADJUSTMENT (HIGH-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-2SB PAL.	TP801/DM-72 (F-4) NOTE : When noise appears at TP801/DM-72 (F-4), measure the level in the center of noise.	●RV16/DM-72 (H-8) TRIG : TP4/DM-72 (D-7)

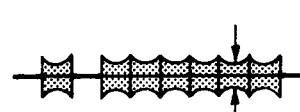
11-20. 4.43MHz OSC ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Frequency counter	TP801/MD-60 (D-7) 4,433.619 ± 0.005kHz	●CV801/MD-60 (F-7)

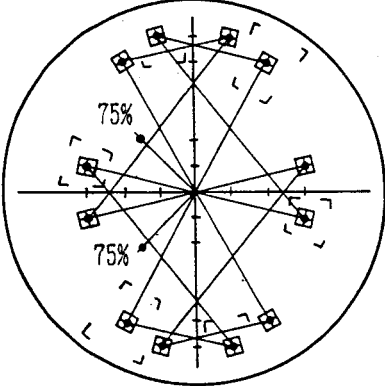
11-21. HORIZONTAL CORRELATOR BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Locked Sweep • EE mode • Oscilloscope CH-2 : INV mode	CH-1/CH-2 : TP407/MD-60 (D-4) GND : E401/MD-60 (E-1) Oscilloscope : CHOP mode  Must be conformed to A point, adjust so that the waveform is symmetrical pattern.	RV404/MD-60 (D-4) TRIG : TP9/SV-112B (L-5)

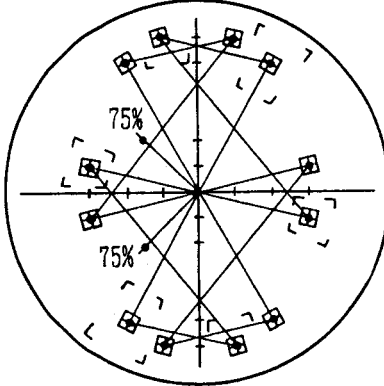
11-22. CHROMA DELAY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Oscilloscope : CHOP mode	CH-1 : TP408/MD-60 (D-5) CH-2 : TP410/MD-60 (B-6)  CH-1=CH-2 $A \geq 2.3V$ (reference)	RV407/MD-60 (C-6) TRIG : TP509/DM-73 (F-8)
• VIDEO IN connector : Color-bar • EE mode • Oscilloscope : ADD mode (CH-2 : INVERT)	CH-1 : TP408/MD-60 (D-5) CH-2 : TP410/MD-60 (B-6)  Minimize,	RV406/MD-60 (C-5) TRIG : TP509/DM-73 (F-8)

11-23. SLICE LEVEL ADJUSTMENT (1)

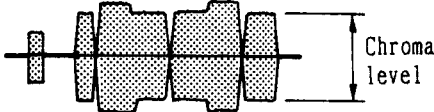
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Using a vectorscope's PHASE control and GAIN control, set the burst level to 75% marked position.	TP411/MD-60(B-6)  • Set the burst level to 75% • Set each spot to "田".	●RV408/MD-60(B-7)

11-24. SLICE LEVEL ADJUSTMENT (2)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Using a vectorscope's PHASE control and GAIN control, set the burst level to 75% marked position.	TP409/MD-60(D-6)  • Set the burst level to 75% • Set each spot to "田".	●RV405/MD-60(D-7)

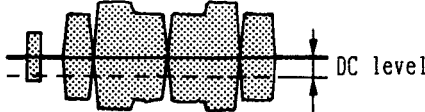
11-25. MIX LEVEL ADJUSTMENT

Step 1.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Oscilloscope : CHOP mode	CH-1 : TP407/MD-60 (D-4) CH-2 : TP413/MD-60 (A-7)  CH-1=CH-2	Chroma level adj. Calibrator of Oscilloscope TRIG : TP509/DM-73 (F-8)

NOTE : When the center of the CH-1 waveform does not coincide with that of the CH-2, adjust in Step 2 first off.

Step 2.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Oscilloscope : CHOP mode	CH-1 : TP407/MD-60 (D-4) CH-2 : TP413/MD-60 (A-7)  CH-1=CH-2	DC level adj. RV409/MD-60 (C-6) TRIG : TP509/DM-73 (F-8)

11-26. Y PHASE EQUALIZING ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : MOD 10T • EE mode	TP1/MD-60 (F-6) Read this level A = B	RV401/MD-60 (E-3)

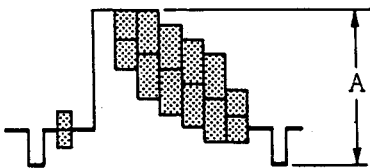
11-27. SYNC TIP CARRIER FREQUENCY ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • Insert a KSP cassette tape. • EE mode	TP15/MD-60 (K-3) 5.6 ± 0.05MHz	RV3/MD-60 (H-5)

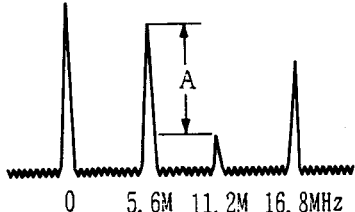
11-28. SYNC TIP CARRIER FREQUENCY ADJUSTMENT (HIGH-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • Insert a KCA or KCS cassette tape. • EE mode	TP15/MD-60 (K-3) 4.8 ± 0.05MHz	RV4/MD-60 (H-5)

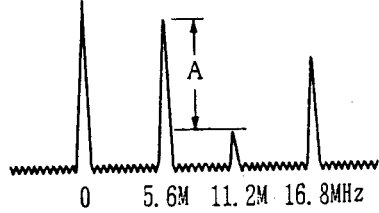
11-29. FM DEVIATION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode	VIDEO OUT connector (terminated by 75 ohms)  $A = 1.0 \pm 0.01V$ H Sync	ⒶRV1/MD-60 (H-7)

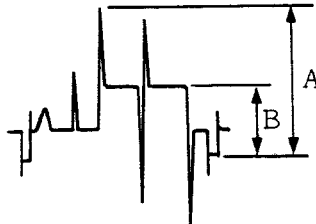
11-30. MODULATOR BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • INPUT SELECT sw : DUB • EJECT mode	TP10/MD-60 (G-5) Spectrum analyzer  Minimize the level at 11.2MHz ($A \geq 45dB$).	ⒶRV2/MD-60 (H-5)

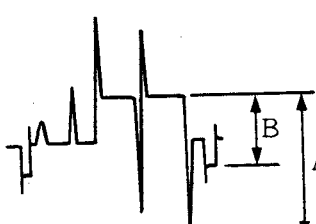
11-31. REC HF BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • INPUT SELECT sw : DUB • EJECT mode	TP15/MD-60 (K-3) Spectrum analyzer  Minimize the level at 11.2MHz ($A \geq 42dB$).	ⒶRV8/MD-60 (J-7)

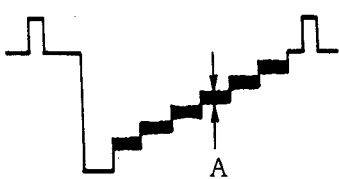
11-32. WHITE CLIP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Short between TP8/MD-60 (G-5) and TP9/MD-60 (G-5) with a shorting clip. • VIDEO IN connector : MOD 10T • Insert a KSP cassette tape. • EE mode	TP11/MD-60 (H-5) 	SP mode adj. RV6/MD-60 (H-6) High-band mode adj. RV5/MD-60 (H-5)
Step 2. • Insert a KCA or KCS cassette tape. • EE mode. • After the adjustment is completed, remove the shorting clip.	With level B as 100% reference, $A = 230 \pm 5\%$ (SP mode) $A = 220^{+0}_{-5}\%$ (High-band mode) (Read the level at the center of moire.)	TRIG : TP5/MD-60 (F-3)

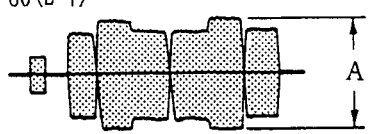
11-33. DARK CLIP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Short between TP8/MD-60 (G-5) and TP9/MD-60 (G-5) with a shorting clip. • VIDEO IN connector : MOD 10T • Insert a KSP cassette tape. • EE mode	TP11/MD-60 (H-5) 	SP mode adj. RV7/MD-60 (J-5) High-band mode adj. RV13/MD-60 (J-5)
Step 2. • Insert a KCA or KCS cassette tape. • EE mode. • After the adjustment is completed, remove the shorting clip.	With level B as 100% reference, $A = 220 \pm 5\%$ (SP mode) $A = 200^{+0}_{-5}\%$ (High-band mode) (Read the level at the center of moire.)	TRIG : TP5/MD-60 (F-3)

11-34. SUBCARRIER TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Connect between TP8/MD-60 (G-5) and TP9/MD-60 (G-5) with 1 kohm resistor. • VIDEO IN Connector : Color-bar • Insert a KCA or KCS cassette tape. • EE mode. • After the adjustment is completed, remove the resistor.	TP11/MD-60 (H-5)  Minimize A. ($A \leq 50\text{mVp-p}$)	RV1/MD-60 (J-4)

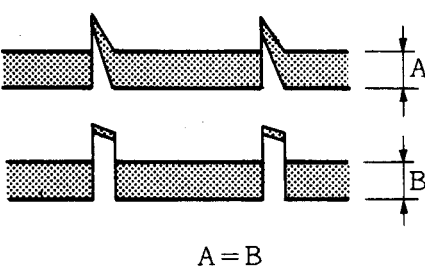
11-35. REC ACC ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • EE mode	TP301/MD-60 (L-7)  $A = 0.8 \pm 0.05\text{V}$	RV202/MD-60 (L-5) TRIG : TP509/DM-73 (F-8)

11-36. APC DC ADJUSTMENT

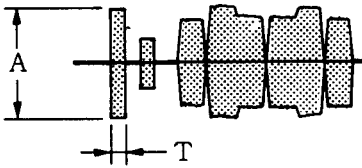
machine conditions for adjustment	specifications	adjustments
• INPUT SELECT sw : DUB • EE mode • DC Voltmeter	TP205/MD-60 (M-6) $8.0 \pm 0.1\text{Vdc}$	RV203/MD-60 (L-5)

11-37. REC APC ADJUSTMENT

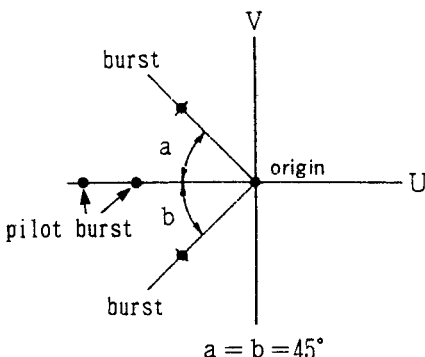
machine conditions for adjustment	specifications	adjustments
- VIDEO IN connector : Color-bar - Insert a KSP cassette tape. - EE mode	TP205/MD-60 (M-6)  $A = B$	● T201/MD-60 (M-7) TRIG : TP4/DM-72 (D-7)

NOTE: After this adjustment is completed, perform the sec.11-35 REC ACC ADJUSTMENT.

11-38. PILOT BURST ADJUSTMENT

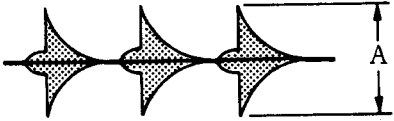
machine conditions for adjustment	specifications	adjustments
- VIDEO IN connector : Color-bar - EE mode	TP302/MD-60 (L-7)  $T = 3.5 \pm 0.1 \mu s$ $(A = 0.8 \pm 0.1 V)$	● RV301/MD-60 (L-8) : T ● RV302/MD-60 (M-7) : A TRIG : TP509/DM-73 (F-8)

11-39. PILOT BURST PHASE ADJUSTMENT

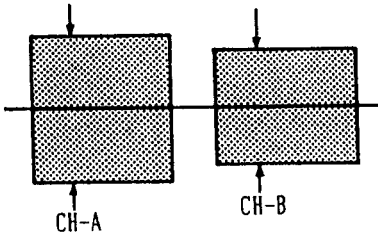
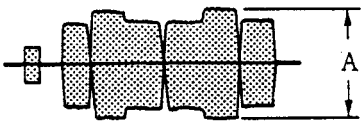
machine conditions for adjustment	specifications	adjustments
- VIDEO IN connector : Color-bar - EE mode - Vectorscope	TP302/MD-60 (L-7)  $a = b = 45^\circ$	● LV301/MD-60 (M-8) TRIG : TP509/DM-73 (F-8)

NOTE: After adjustment, perform sec.11-38. PILOT BURST ADJUSTMENT.

11-40. REF 135° BURST PULSE LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode	TP304/MD-60 (K-8)  $A = 1.0 \pm 0.1V$	RV303/MD-60 (K-8) TRIG : TP509/DM-73 (F-8)

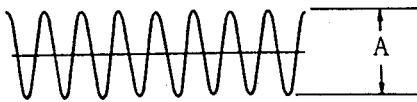
11-41. PB CHROMA RF LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • TRACKING : Maximize the RF level of TP502/DM-73.	TP502/DM-73 (C-4)  CH-A level = CH-B level (Level difference between CH-A and B is within 5%)	RV4/DM-72 (D-8)
Step 2. • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • TRACKING : Maximize the RF level of TP502/DM-73.	TP502/DM-73 (C-2)  $A = 0.2 \pm 0.01V$	RV503/DM-72 (B-5) TRIG : TP509/DM-73 (F-8)
Step 3. • Play back the color-bar segment of the alignment tape RR5-2SB PAL. • TRACKING : Maximize the RF level of TP502/DM-73.	$A = 0.2 \pm 0.05V$	

11-42. VCO DC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • DC Voltmeter	TP514/DM-73 (D-7) $8.15 \pm 0.1 \text{Vdc}$	RV505/DM-73 (F-8)
Step 2. • Play back the color-bar segment of the alignment tape RR5-2SC PAL. • DC Voltmeter	TP514/DM-73 (D-7) $8.1 \pm 0.1 \text{Vdc}$	RV701/DM-73 (F-8)

11-43. 5. 3MHz LEVEL ADJUSTMENT

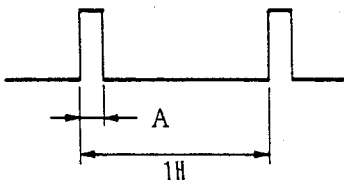
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Maximize the A level at LV701 (C-6) and LV702 (B-6) on the DM-73 board.	TP513/DM-73 (B-6)  $A = 0.61 \pm 0.03 \text{V}$	RV517/DM-73 (B-6)

11-44. PB ACC BURST GATE ADJUSTMENT

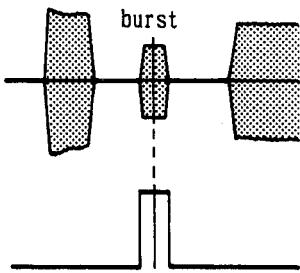
Step 1. Burst flag level check

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP509/DM-73 (F-8)  $A = 5.0 \pm 0.2 \text{V}$	

Step2. Burst flag width adjustment

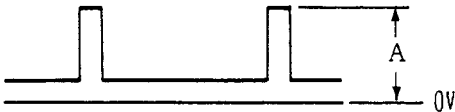
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP509/DM-73 (F-8)  $A=2.2\pm0.1\mu s$	●RV509/DM-73 (E-9)

Step3. Burst flag phase adjustment

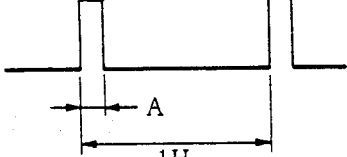
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	CH-1 : TP518/DM-73 (E-3) CH-2 : TP509/DM-73 (F-8)  Align the center of both waveforms.	●RV508/DM-73 (E-9) TRIG : CH-2

11-45. PB APC BURST GATE ADJUSTMENT

Step1. Burst flag level adjustment

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP508/DM-73 (E-9)  $A=3.4\pm0.1V$	●RV510/DM-73 (D-9)

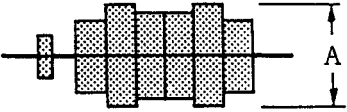
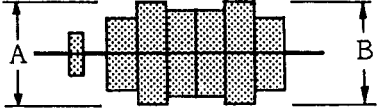
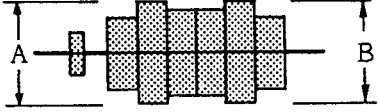
Step2. Burst flag width adjustment

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP508/DM-73 (E-9)  $A = 2.2 \pm 0.1 \mu s$	RV507/DM-73 (F-9)

Step3. Burst flag phase adjustment

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	CH-1 : TP518/DM-73 (E-3) CH-2 : TP508/DM-73 (E-9) Pilot burst Align the center of both waveforms.	●RV512/DM-73 (E-9) TRIG : CH-2

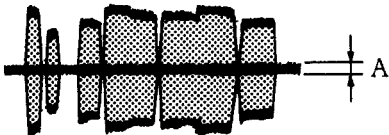
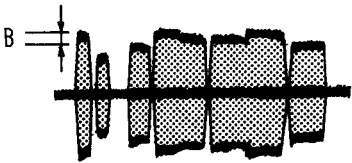
11-46. DG COMPENSATION TENTATIVE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Fully turn RV703/DM-73 (F-3) in the clockwise direction from the component side.	TP515/DM-73 (D-3)  $A = 0.6 \pm 0.05V$ (Adjust the red level.)	●RV518/DM-73 (D-5) TRIG : TP509/DM-73 (F-8)
	TP515/DM-73 (D-3)  $A = B$	●RV703/DM-73 (F-3) TRIG : TP509/DM-73 (F-8)
Step 2. • Play back the color-bar segment of the alignment tape RR5-2SC PAL. • Fully turn RV702/DM-73 (E-2) in the clockwise direction from the component side.	TP515/DM-73 (D-3)  $A = B$	●RV702/DM-73 (E-2) TRIG : TP509/DM-73 (F-8)

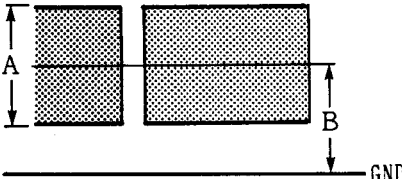
11-47. PB ACC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP515/DM-73 (D-3)  $A = 0.6 \pm 0.05V$	●RV518/DM-73 (D-5) TRIG : TP509/DM-73 (F-8)
• Play back the color-bar segment of the alignment tape RR5-2SC PAL.	Check : $A = 0.7 \pm 0.05V$	
• VIDEO IN connector : color-bar • EE mode	TP515/DM-73 (D-3)  $A = 0.6 \pm 0.05V$	●T502/DM-73 (F-5) TRIG : TP509/DM-73 (F-8)

11-48. CONVERTER BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Wait for more than five minutes after power is turned ON.	TP518/DM-73 (E-3)  $A \leq 30mV$ Minimize the carrier leak.	●RV519/DM-73 (D-3) TRIG : TP509/DM-73 (F-8)
• Play back the color-bar segment of the alignment tape RR5-2SC PAL. • Wait for more than five minutes after power is turned ON.	TP518/DM-73 (E-3)  minimize B	●CV701/DM-73 (F-4) TRIG : TP509/DM-73 (F-8)

11-49. DUB CHROMA LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP504/DM-73 (C-1)  $A = 1.0 \pm 0.04V$ $(B = 6.0 \pm 1V)$	●RV504/DM-73 (D-2) TRIG : TP4/DM-72 (D-7)
• Play back the color-bar segment of the alignment tape RR5-2SC PAL.	Check : $A = 1.0 \pm 0.1V$ $B = 9.0 \pm 0.5V$	TRIG : TP4/DM-72 (D-7)

11-50. TBC MODE APC ADJUSTMENT

Step 1.

machine conditions for adjustment	specifications	adjustments
• MODE SELECT sw : TBC • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • DC voltmeter	TP514/DM-73 (D-7) $8.15 \pm 0.1Vdc$ (Check that the color-bar signal is played back at the color mode on the color monitor in the normal FWD mode.)	●RV505/DM-73 (F-8)

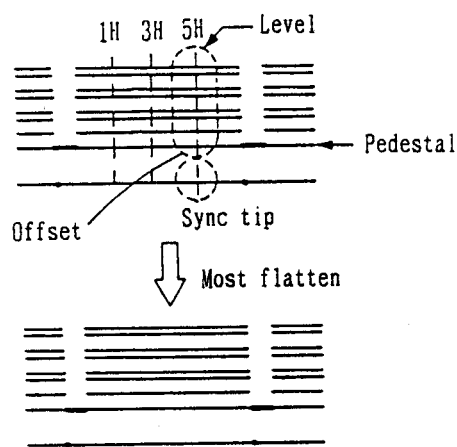
Step 2.

machine conditions for adjustment	specifications	adjustments
• MODE SELECT sw : TBC • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Put the unit into the SEARCH mode and change the mode from FWD SEARCH X1/30 to STILL • DC voltmeter	TP514/DM-73 (D-7) $8.6 \pm 0.05Vdc$	●RV807/DM-73 (E-7)

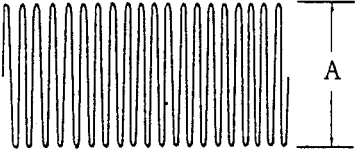
Step 3.

machine conditions for adjustment	specifications	adjustments
• MODE SELECT sw : TBC • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Put the unit into the SEARCH mode and change the mode from FWD SEARCH X1/30 to STILL • DC voltmeter	TP514/DM-73 (D-7) $7.55 \pm 0.05 \text{Vdc}$	●RV808/DM-73 (E-8)

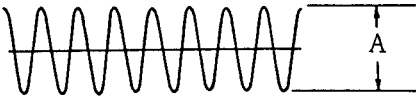
11-51. DOC OFFSET/LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the pseudo color-bar segment of the alignment tape RR5-1SD PAL.	TP801/DM-72 (F-4) 	Offset adj. ●RV13/DM-72 (J-5) Level adj. ●RV201/DM-72 (L-5) TRIG : TP4/DM-72 (D-7)

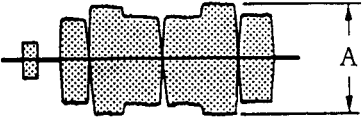
11-52. ROTARY ERASE CURRENT ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KCA or KCS type cassette tape into the unit. • VIDEO INSERT mode	TP102/RP-40B (A-1) : CH-A TP103/RP-40B (A-1) : CH-B GND : E101/RP-40B (A-1)  $A = 1.0 \pm 0.02V$	CH-A : ⌚RV102/RP-40B (A-2) CH-B : ⌚RV101/RP-40B (A-2)

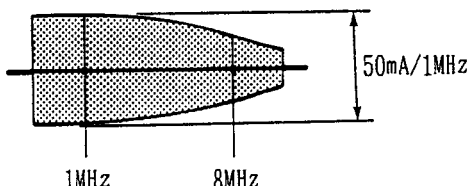
11-53. REC 5.35MHz LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode	TP206/MD-60 (L-4)  $A = 0.6 \pm 0.1V$	⌚RV517/MD-73 (B-6)

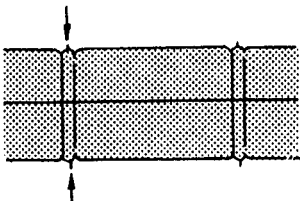
11-54. REC CHROMA RF LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • EE mode	TP201/MD-60 (N-2)  $A = 0.45 \pm 0.025V$	⌚RV201/MD-60 (N-6) TRIG : TP509/DM-73 (F-8)

11-55. REC CURRENT FREQUENCY RESPONSE ADJUSTMENT

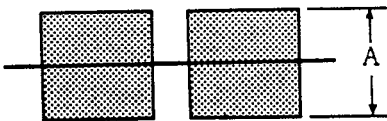
machine conditions for adjustment	specifications	adjustments				
• Desolder the bridge between SL1/RP-40B (D-2) and SL2/RP-40B (D-2). • Short between TP3 (C-2) and E2 (C-2) on the RP-40B board with shoting clip. • Connect between TP5 (D-1) and TP6 (D-1) and TP8 (D-1) and TP9 (D-1) on the RP-40B board with shorting clips. • Supply an RF sweep signal to TP4/RP-40B. • Insert a KSP cassette tape. • VIDEO IN connector : Color-bar • REC mode • After the adjustment is completed, remove the shorting clips and resolder the solder bridges.	between TP5/RP-40B (D-1) and TP6/RP-40B (D-1) : CH-A between TP8/RP-40B (D-1) and TP9/RP-40B (D-1) : CH-B  <table><tr><td>1MHz</td><td>8MHz</td></tr><tr><td>100% (reference)</td><td>90 ±5%</td></tr></table> • Use a current probe for observing the current.	1MHz	8MHz	100% (reference)	90 ±5%	CH-A : ●RV3/RP-40B (C-2) CH-B : ●RV5/RP-40B (C-1) TRIG : VD/SWEEP GEN
1MHz	8MHz					
100% (reference)	90 ±5%					

11-56. Y REC CURRENT ADJUSTMENT

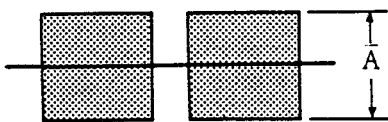
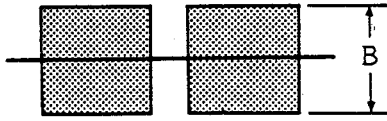
machine conditions for adjustment	specifications	adjustments
• Desolder the bridge on SL1/RP-40B (D-2). • Connect between TP5/RP-40B and TP6/RP-40B with a shorting clip. • Short between TP1/RP-40B (B-2) and GND with a shorting clip. • VIDEO IN connector : Color-bar SP mode adjustment • Insert a KSP cassette tape. • REC mode High-band mode adjustment • Insert a KCA or KCS cassette tape. • REC mode • After the adjustment is completed, remove the shorting clips and resolder the solder bridge.	between TP5/RP-40B (D-1) and TP6/RP-40B (D-1)  A (at sync) SP mode adjustment : $A = 55 \pm 5 \text{mA}$ High-band mode adjustment : $A = 67^{+8}_{-5} \text{mA}$ • Use a current probe for observing the current.	SP mode adj. RV8/RP-40B (C-2) Conventional mode adj. RV7/RP-40B (B-2) TRIG : TP1/MD-60 (F-6)

11-57. CHROMA REC CURRENT ADJUSTMENT

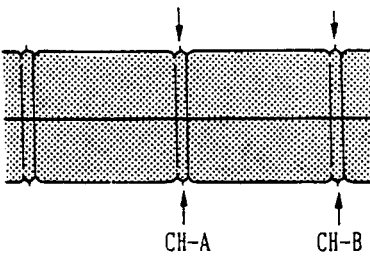
Step 1.

machine conditions for adjustment	specifications	adjustments
• Desolder the bridge on SL1/RP-40B (D-2). • Connect between TP5/RP-40B and TP6/RP-40B with a shorting clip. • Short between TP3/RP-40B (C-2) and GND with shorting clip. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • REC mode • After the adjustment is completed, remove the shorting clips and resolder the solder bridge.	between TP5/RP40B (D-1) and TP6/RP-40B (D-1)  $A = 13 \pm 5\text{mA}$ • Use a current probe for observing the current.	RV1/RP-40B (B-2) TRIG : TP4/DM-72 (D-7)

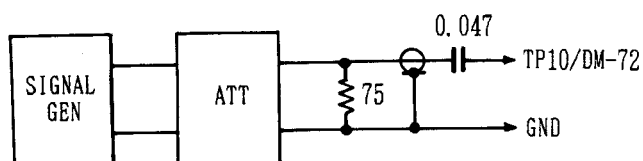
Step 2.

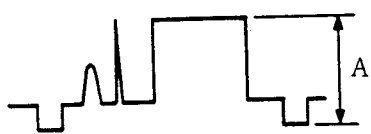
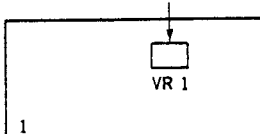
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Maximize the level at TP502/DM-73 using a TRACKING control.	TP502/DM-73 (C-4)  $A \approx 200\text{mV}$	TRIG : TP4/DM-72 (D-7)
• Set the TRACKING control to the center click position. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape and put the unit into the REC/PB mode.	TP512/DM-72 (C-2)  $B = A \pm 20\%$ If the specification is not satisfied, readjust Step 1.	TRIG : TP4/DM-72 (D-7)

11-58. O. A Y RF OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- Set the TRACKING control to the center click position. - VIDEO IN connector : Color-bar SP mode adj. - Insert a KSP cassette tape. - Play back the self recorded portion. Conventional mode adj. - Insert a KCA or KCS cassette tape. - Play back the self recorded portion.	TP5/DM-72 (F-9)  CH-A CH-B Level adjustment : $0.35 \pm 0.05V$ Balance check : $CH-A = CH-B \pm 15\%$	Level adj. RV5/DM-72 (B-8) TRIG : TP4/DM-72 (D-7)

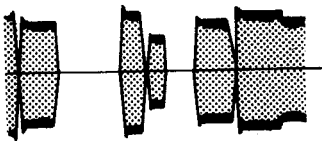
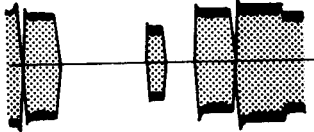
11-59. NOISE CANCELLER ADJUSTMENT



machine conditions for adjustment	specifications	adjustments
- Desolder the bridge at SL1/DM-72 (G-4). - Connect a signal generator. - Output an MOD 20T pulse signal from the signal generator.	TP10/DM-72 (G-3)  $A = 100 \pm 5mV$	Attenuator
	TP11/DM-72 (H-4)  $A = 360 \pm 10mV$	VR1 (IC12) /DM-72 (G-4) 

• After the adjustment is completed, resolder the solder bridge.

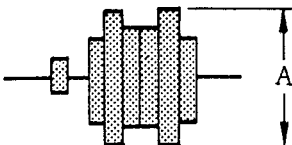
11-60. PILOT BURST GATE PULSE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP523/DM-73 (H-2)  ↓ Mute the Pilot Burst 	RV506/DM-73 (F-9)
		TRIG : TP509/DM-73 (F-8)

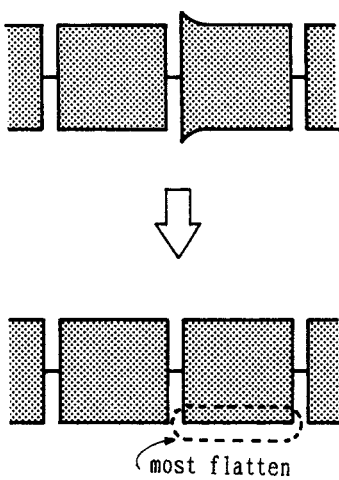
11-61. PILOT BURST DC BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP523/DM-73 (H-2)  A = 0	RV705/DM-73 (G-3) TRIG : TP509/DM-73 (F-1)

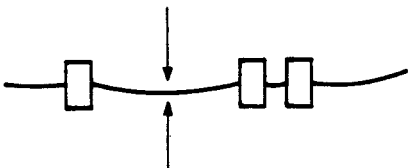
11-62. HIGH SPEED ACC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP525/DM-73 (H-4)  $A = 0.6 \pm 0.02 V_{p-p}$	RV522/DM-73 (H-2) TRIG : TP509/DM-73 (F-8)

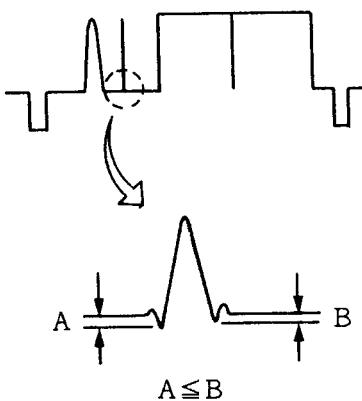
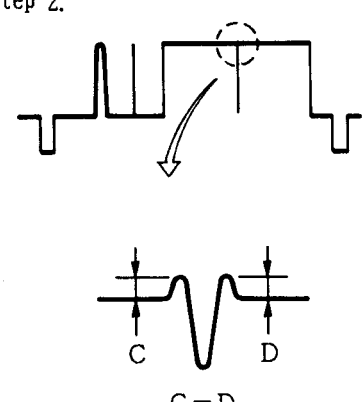
11-63. HIGH SPEED ACC GAIN ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP525/DM-73 (H-4) 	RV521/DM-73 (G-1) TRIG : TP4/DM-72 (D-7)

11-64. CHROMA NOISE CANCELLER ADJUSTMENT

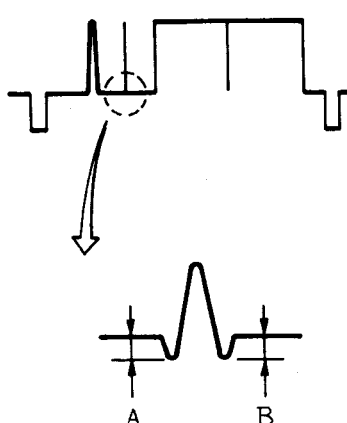
machine conditions for adjustment	specifications	adjustments
Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP524/DM-73 (H-4)  Minimize the amplitude.	RV523/DM-73 (H-4) TRIG : TP509/DM-73 (F-8)

11-65. Y PHASE EQUALIZING ADJUSTMENT (SP MODE)

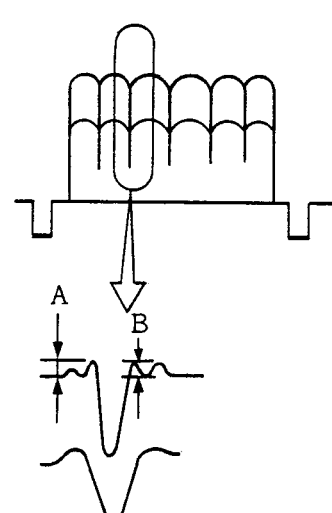
machine conditions for adjustment	specifications	adjustments
• Short between TP518/DM-73 (E-3) and GND with shorting clip. • Play back the MOD 10T segment of the alignment tape RR5-1SD PAL.	Step 1. VIDEO OUT connector (terminated by 75 ohms.)  $A \leq B$	● LV1/DM-72 (K-7) TRIG : TP509/DM-73 (F-8)
	Step 2. If the specification is not satisfied in Step 1, adjust Step 2.  $C = D$	● RV810/DM-73 (B-8)

NOTE : After adjustment, perform sec. 11-58. O. A Y RF OUTPUT LEVEL ADJUSTMENT.

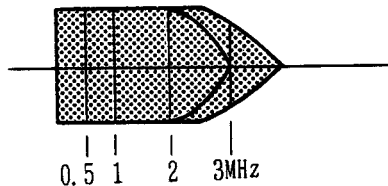
11-66. Y PHASE EQUALIZING ADJUSTMENT (HIGH-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• Short between TP518/DM-73(E-3) and GND with shorting clip. • Play back the MOD 20T segment of the alignment tape RR5-2SB PAL. • After the adjustment is completed, remove the shorting clip.	VIDEO OUT connector(terminated by 75 ohms.)  Minimize A, within the limits of specification. $B < A \leq 2B$	RV12/DM-72(J-9)

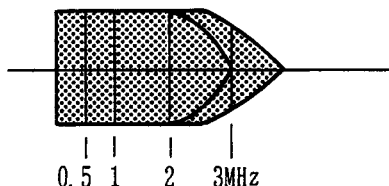
11-67. Y PHASE EQUALIZING ADJUSTMENT (LOW-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• Short between TP518/DM-73(E-3) and GND with shorting clip. • Play back the MOD 20T segment of the alignment tape RR5-2SC PAL. • After the adjustment is completed, remove the shorting clip.	VIDEO OUT connector(terminated by 75 ohms.)  $A = B$	RV551/DM-72(K-7)

11-68. OA Y FREQUENCY RESPONSE CHECK (SP MODE)

machine conditions for adjustment	specifications	adjustments								
• Short between TP502/DM-73(C-4) and GND with a shorting clip. • VIDEO IN connector : Gated sweep (Burst off) • Insert the KSP Cassette tape. • Play back the self-recorded portion. • After the adjustment is completed, remove the shorting clip.	VIDEO OUT connector (terminated by 75 ohms.)  <table><tr><th>0.5MHz</th><th>1MHz</th><th>2MHz</th><th>3MHz</th></tr><tr><td>100% (REF)</td><td>100 ± 5%</td><td>100 ± 5%</td><td>86 ± 5%</td></tr></table> Read the level at the center of moire.	0.5MHz	1MHz	2MHz	3MHz	100% (REF)	100 ± 5%	100 ± 5%	86 ± 5%	
0.5MHz	1MHz	2MHz	3MHz							
100% (REF)	100 ± 5%	100 ± 5%	86 ± 5%							

11-69. OA Y FREQUENCY RESPONSE CHECK (HIGH-BAND MODE)

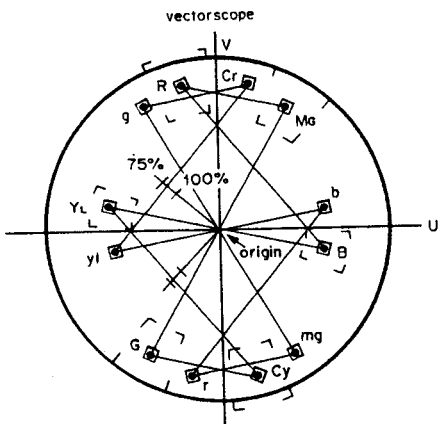
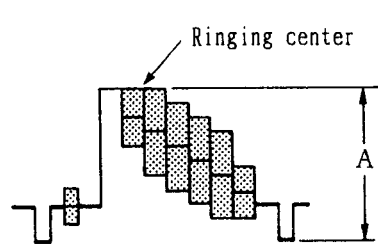
machine conditions for adjustment	specifications	adjustments								
• Short between TP502/DM-73(C-4) and GND with a shorting Clip. • Short between TP2/RP-40B(B-1) and GND with a shorting clip. • VIDEO IN connector : Gated sweep (Burst on) • Insert the KCA-cassette tape. • Play back the self-recorded portion. • After the adjustment is completed, remove the shorting clips.	VIDEO OUT connector (terminated by 75 ohms.)  <table><tr><th>0.5MHz</th><th>1MHz</th><th>2MHz</th><th>3MHz</th></tr><tr><td>100% (REF)</td><td>100 ± 5%</td><td>100 +5% -12%</td><td>80 ± 10%</td></tr></table>	0.5MHz	1MHz	2MHz	3MHz	100% (REF)	100 ± 5%	100 +5% -12%	80 ± 10%	
0.5MHz	1MHz	2MHz	3MHz							
100% (REF)	100 ± 5%	100 +5% -12%	80 ± 10%							
	Read the level at the center of moire.									

11-70. SP/HIGH-BAND DC LEVEL DIFFERENCE ADJUSTMENT

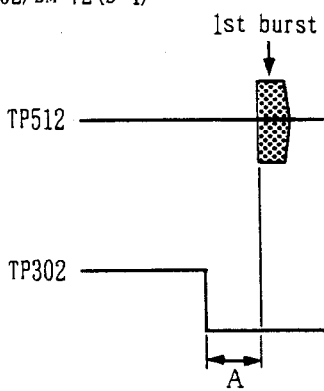
machine conditions for adjustment	specifications	adjustments
• INPUT SELECT sw : DUB • Play back the color-bar segment of the alignment tape RR5-2SB PAL. • Record DC level "A" at TP8/DM-72 (G-9). • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Read the DC level "B" at TP8/DM-72.	TP8/DM-72 (G-9) $B = A$ (adjust B level)	RV9/DM-72 (G-7)
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Record DC level "C" at TP13/DM-72 (H-6). • Play back the color-bar segment of the alignment tape RR5-2SB PAL. • Read the DC level "D" at TP13/DM-72.	TP13/DM-72 (H-6) $D = C$ (adjust D level)	RV10/DM-72 (H-9)

11-71. Y/C MIXING ADJUSTMENT

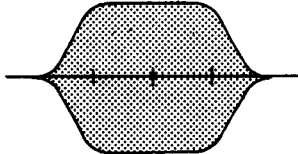
Before this adjustment, perform the sec. 11-18. DUB Y OUTPUT LEVEL ADJUSTMENT (SP MODE) and the sec. 11-19. DUB Y OUTPUT LEVEL ADJUSTMENT (HIGH-BAND MODE.)

machine conditions for adjustment	specifications	adjustments
Step 1. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • Playback the self recorded portion.	VIDEO OUT connector (terminated by 75 ohms)  RED luminescent spots should be located in the center of mark .	RV401/DM-72 (J-3)
	VIDEO OUT connector (terminated by 75 ohms)  $A = 1.0 \pm 0.05V$	RV402/DM-72 (J-4)
Step 2. • Play back the color-bar segment of the alignment tape RR5-2SC PAL.	$A = 1.0 \pm 0.05V$	

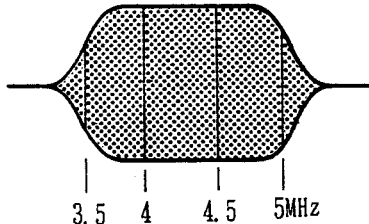
11-72. TIME CODE MUTE PULSE WIDTH ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the time code segment of the alignment tape RR5-1SD PAL.	CH-1: TP512/DM-72 (C-2) CH-2: TP302/DM-72 (B-4)  $A = 30 \pm 10 \mu\text{sec}$	RV301/DM-72 (B-2) TRIG : CH-2

11-73. PB CHROMA FREQUENCY RESPONSE ADJUSTMENT

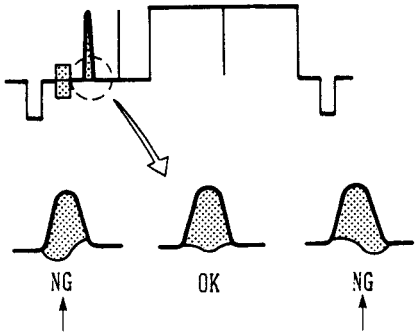
machine conditions for adjustment	specifications	adjustments								
• Play back the gated sweep (color) segment of the alignment tape RR5-1SD PAL.	TP525/DM-73 (H-4)  3.93 4.43 4.93MHz <table><tr><td>3.43MHz</td><td>3.93MHz</td><td>4.43MHz</td><td>4.93MHz</td></tr><tr><td>50 ±10%</td><td>98 ±2%</td><td>100% (REF)</td><td>78 ±5%</td></tr></table>	3.43MHz	3.93MHz	4.43MHz	4.93MHz	50 ±10%	98 ±2%	100% (REF)	78 ±5%	RV502/DM-72 (B-4)
3.43MHz	3.93MHz	4.43MHz	4.93MHz							
50 ±10%	98 ±2%	100% (REF)	78 ±5%							

11-74. OA CHROMA FREQUENCY RESPONSE CHECK

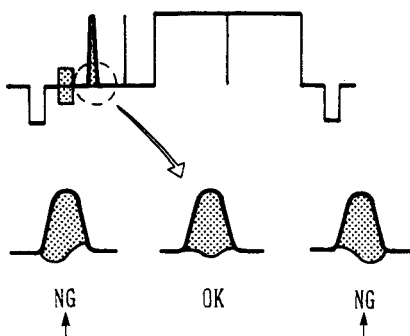
machine conditions for adjustment	specifications	adjustments								
• VIDEO IN connector : Gated sweep (Burst on) • Insert the KSP cassette tape. • Play back the self-recorded portion.	TP525/DM-73 (H-4)  <table><tr><th>3.5MHz</th><th>4MHz</th><th>4.5MHz</th><th>5MHz</th></tr><tr><td>70 ±10%</td><td>100 ±2%</td><td>100% (REF)</td><td>80 ±8%</td></tr></table> Read the level at the center of moiré. NOTE : When the level does not meet the specification, perform finetuning at RV502/DM-73 (B-4).	3.5MHz	4MHz	4.5MHz	5MHz	70 ±10%	100 ±2%	100% (REF)	80 ±8%	
3.5MHz	4MHz	4.5MHz	5MHz							
70 ±10%	100 ±2%	100% (REF)	80 ±8%							

NOTE : After this finetuning is completed, perform the sec. 11-73. PB CHROMA FREQUENCY RESPONSE ADJUSTMENT.

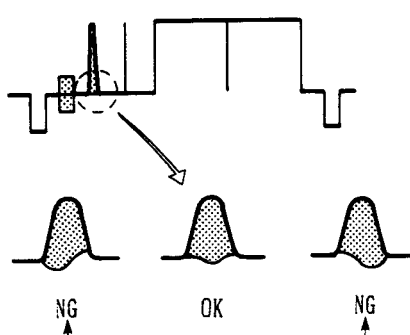
11-75. PB Y/C DELAY ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the pulse & bar segment of the alignment tape RR5-1SD PAL.	VIDEO OUT connector (terminated by 75 ohms.)  (Chroma advanced) (Chroma delayed)	RV504/DM-72 (D-2) When the adjustment is not possible with RV504, adjust using DL501/DM-72 (C-3) (at SP side) (When the chroma signal is advanced, adjust the tap to the higher number.)

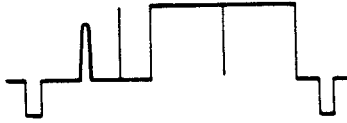
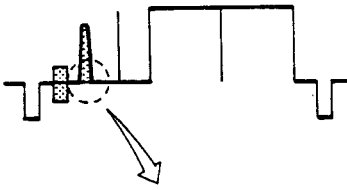
11-76. PB Y/C DELAY ADJUSTMENT (HIGH-BAND MODE)

machine conditions for adjustment	specifications	adjustments
Play back the MOD 20T pulse segment of the alignment tape RR5-2SB PAL.	VIDEO OUT connector(terminated by 75 ohms.)  (Chroma advanced) (Chroma delayed)	●RV505/DM-72(B-2) When the adjustment is not possible with RV505, adjust using DL501/DM-72(C-3) (at conventional side) (When the chroma signal is advanced, adjust the tap to the higher number.)

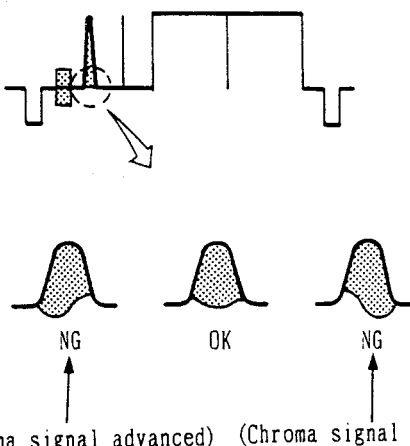
11-77. PB Y/C DELAY ADJUSTMENT (LOW-BAND MODE)

machine conditions for adjustment	specifications	adjustments
Play back the MOD 20T pulse segment of the alignment tape RR5-2SC PAL.	VIDEO OUT connector(terminated by 75 ohms.)  (Chroma advanced) (Chroma delayed)	●CV702/DM-72(D-4)

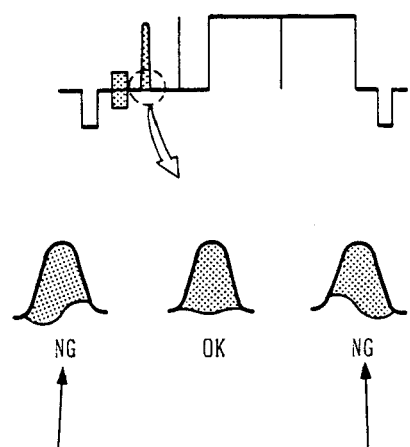
11-78. Y/C DELAY DUB ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the pulse and bar segment(color) of the alignment tape RR5-1SD PAL. • Oscilloscope : ADD mode.	CH-1 : TP15/DM-72 (H-4) CH-2 : TP504/DM-73 (C-1) TP15  TP504  ADD mode  NG OK NG  (Chroma signal advanced) (Chroma signal delayed)	●RV704/DM-73 (C-2) TRIG : TP509/DM-73 (F-8)

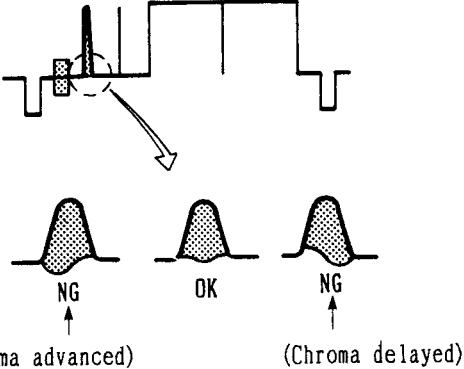
11-79. Y/C DELAY REC ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments																		
• VIDEO IN connector : MOD 10T • Insert a KSP cassette tape. • Play back the self recorded portion.	VIDEO OUT connector (terminated by 75 ohms)  NG OK NG (Chroma signal advanced) (Chroma signal delayed)	DL201/MD-60(N-7) (When the chroma signal is advanced, adjust the tap number to the higher figure.) DL201 (Soldering side) <table border="0"> <tr> <td>⊙</td><td>6</td><td>⊙</td></tr> <tr> <td>⊙</td><td>5</td><td>⊙</td></tr> <tr> <td>⊙</td><td>4</td><td>⊙</td></tr> <tr> <td>⊙</td><td>3</td><td>⊙</td></tr> <tr> <td>⊙</td><td>2</td><td>⊙</td></tr> <tr> <td>⊙</td><td>1</td><td>⊙</td></tr> </table> ↑ Slit for SP ↑ Slit for CONV TRIG : TP509/DM-73 (F-8)	⊙	6	⊙	⊙	5	⊙	⊙	4	⊙	⊙	3	⊙	⊙	2	⊙	⊙	1	⊙
⊙	6	⊙																		
⊙	5	⊙																		
⊙	4	⊙																		
⊙	3	⊙																		
⊙	2	⊙																		
⊙	1	⊙																		

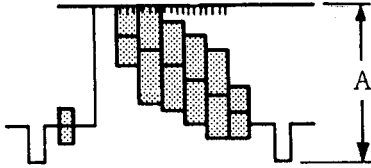
11-80. Y/C DELAY REC ADJUSTMENT (HIGH-BAND MODE)

machine conditions for adjustment	specifications	adjustments																		
• VIDEO IN connector : MOD 10T • Insert a KCA or KCS cassette tape. • Play back the self recorded portion.	VIDEO OUT connector (terminated by 75 ohms)  NG OK NG (Chroma signal advanced) (Chroma signal delayed)	DL201/MD-60(N-7) (When the chroma signal is advanced, adjust the tap number to the higher figure.) DL201 (Soldering side) <table border="0"> <tr> <td>⊙</td><td>6</td><td>⊙</td></tr> <tr> <td>⊙</td><td>5</td><td>⊙</td></tr> <tr> <td>⊙</td><td>4</td><td>⊙</td></tr> <tr> <td>⊙</td><td>3</td><td>⊙</td></tr> <tr> <td>⊙</td><td>2</td><td>⊙</td></tr> <tr> <td>⊙</td><td>1</td><td>⊙</td></tr> </table> ↑ Slit for SP ↑ Slit for CONV TRIG : TP509/DM-73 (F-8)	⊙	6	⊙	⊙	5	⊙	⊙	4	⊙	⊙	3	⊙	⊙	2	⊙	⊙	1	⊙
⊙	6	⊙																		
⊙	5	⊙																		
⊙	4	⊙																		
⊙	3	⊙																		
⊙	2	⊙																		
⊙	1	⊙																		

11-81. EE MODE Y/C DELAY ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
- VIDEO IN connector : MOD 10T pulse - Insert a KSP cassette tape. - EE mode	VIDEO OUT connector (terminated by 75 ohms.)  (Chroma advanced) (Chroma delayed)	RV506/DM-72 (C-5)

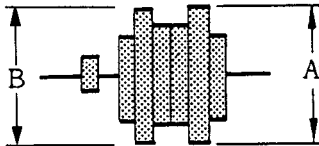
11-82. PB CHARACTER MIX ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- VIDEO IN connector : Color-bar - Indicate the ITEM No. 104, TITLE (LARGE) in the DIAL MENU operation on the monitor (Refer to Section 2-11). - Select the ■ in the character menu area and set it one line in the title setup area. - Superimpose the title on the monitor.	VIDEO MONITOR OUT connector (terminated by 75 ohms)  A : Adjust the character signal portion to the white level.	RV403/DM-72 (G-2)

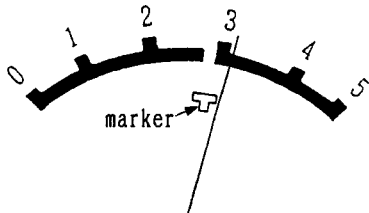
11-83. DG COMPENSATION ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : MOD 5 STEP • Adjust the vectorscope's GAIN control so that luminescent spots are on the circumference. • Insert a KSP cassette tape and play back the self recorded portion.	VIDEO OUT connector (terminated by 75 ohms) Vectorscope (DG mode)  Minimize the A $DG \leq 3\%$	RV703/DM-73 (F-3)

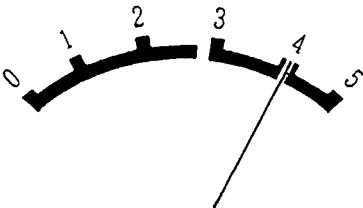
11-84. DG COMPENSATION ADJUSTMENT (LOW-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-2SC PAL.	VIDEO OUT connector (terminated by 75 ohms)  $A = B$	RV702/DM-73 (E-2)

11-85. VIDEO METER ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Wait for more than five minutes after power is turned on.	Video meter  Adjust the meter so that its pointer is on the right edge of the marker.	RV10/MD-60 (H-3)

11-86. TRACKING METER ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the TRACKING control to the center click position. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape and play back the self recorded portion. • Wait for more than five minutes after power is turned on.	Video/RF meter  Adjust the meter so that its pointer indicates scale 4.	●RV9/MD-60(J-2)

SECTION 12

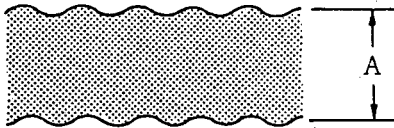
TIME CODE SYSTEM ALIGNMENT

[Equipment Required]

- Oscilloscope
- Square Wave Oscillator
- Cassette Tape : KSP-60
- Alignment Tape : RR5-1SD PAL (Part No. 8-960-037-80) -SP tape-

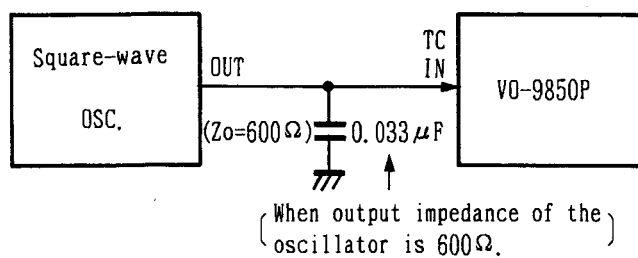
TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	—	OFF	—
3	Gated sweep(B/W)	1kHz, 0dB		—
3	Gated sweep(color)	10kHz, -10dB		—
3	Pulse & Bar(color) (MOD 10T and inverted 2T)	1kHz, -20dB		—
		40Hz, -20dB		—
		7kHz, -20dB		—
		10kHz, -20dB		—
		15kHz, -20dB		—
3	Monoscope(color)	1kHz, -20dB	ON	—
		15kHz, -20dB		—
3	Pseudo color bars	—	OFF	Time code

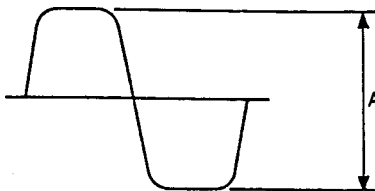
12-1. TC PB LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the time code signal on alignment tape RR5-1SD PAL.	TP405/NR-31 (C-6) GND : E400/NR-31 (A-6)  $A = 1.4 \pm 0.1V$	●RV401/NR-31 (C-6) TRIG : TP4/SV-112B (L-6)

12-2. TC REC LEVEL ADJUSTMENT

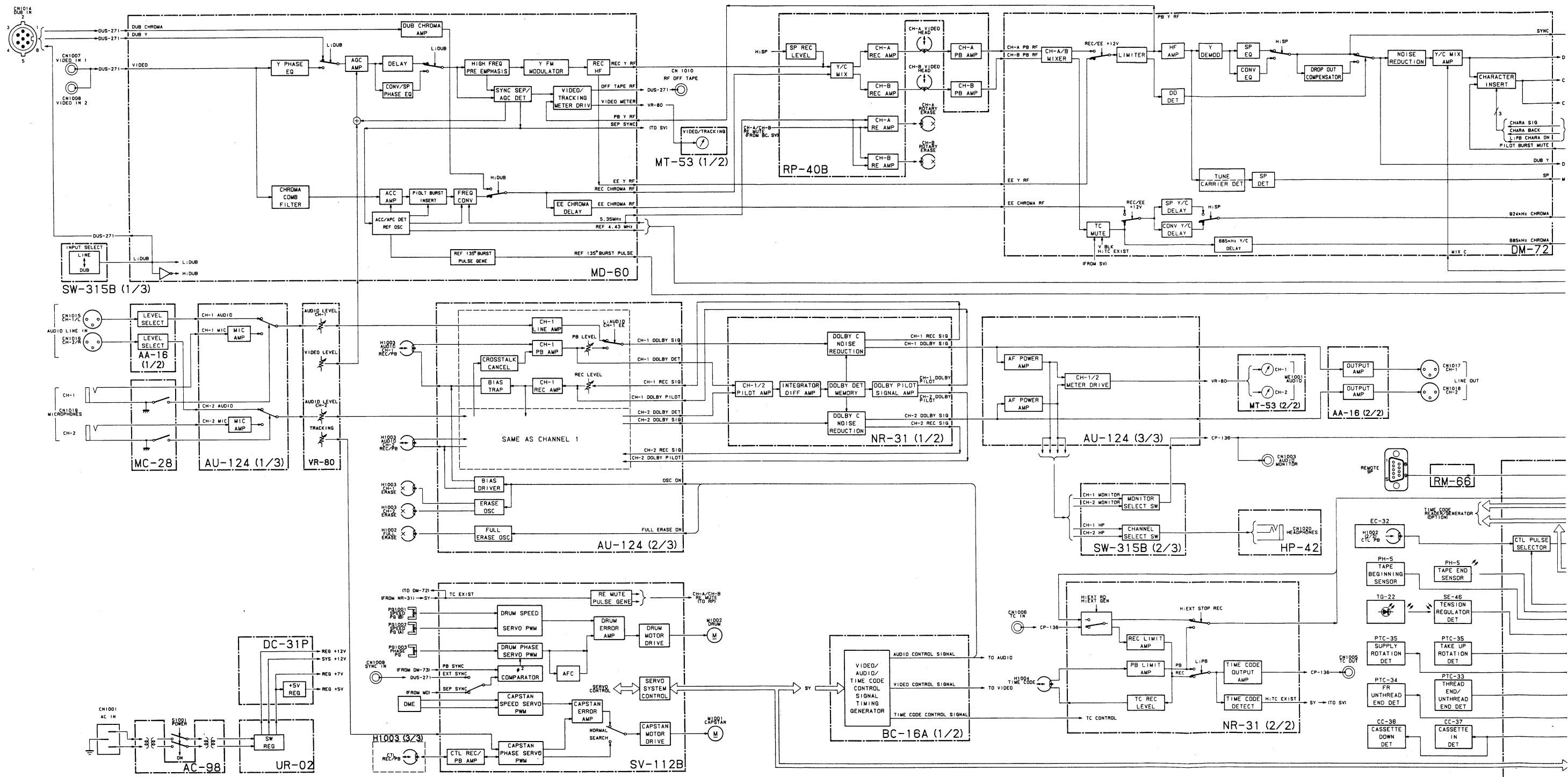
【CONNECTION】

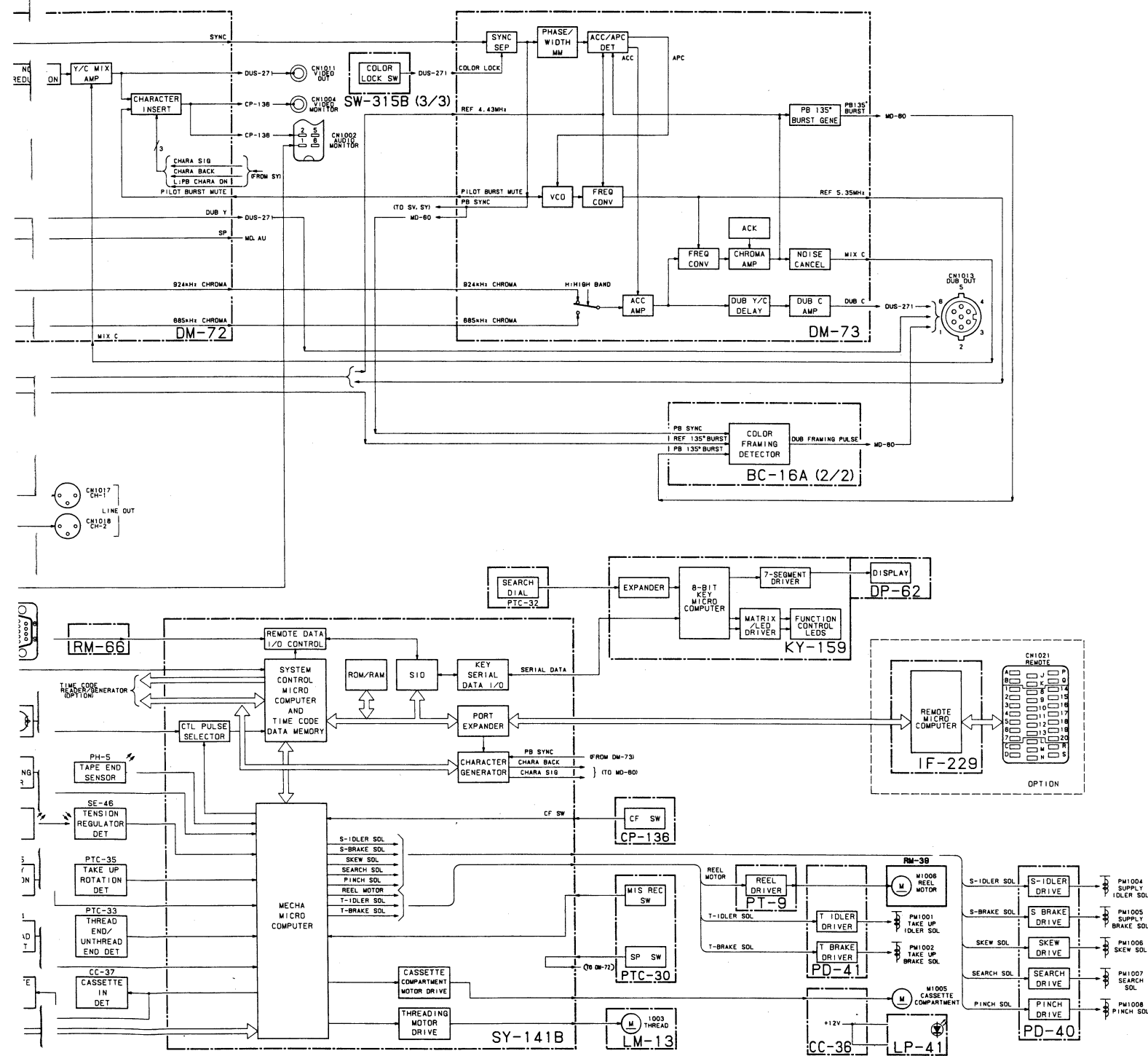


machine conditions for adjustment	specifications	adjustments
• TIME CODE IN : 1.2kHz, 1Vp-p, square wave (EBU formatted) • VIDEO IN : color-bar • Insert the KSP-60 tape, and play back the recorded segment.	TP405/NR-31 (C-6)  $A = 1.4 \pm 0.1V$	●RV402/NR-31 (L-6) REC mode → adj PB mode → check

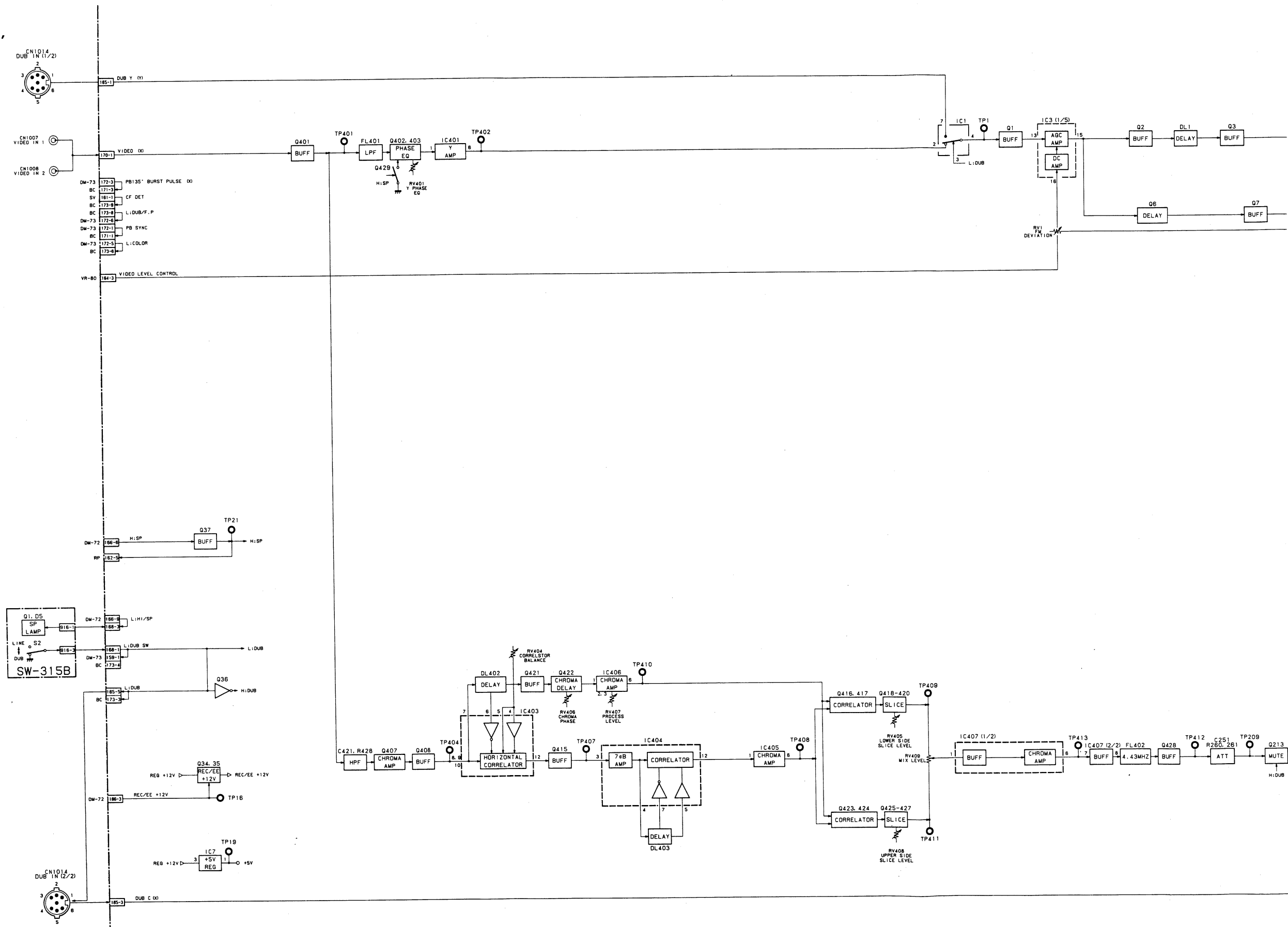
SECTION 13

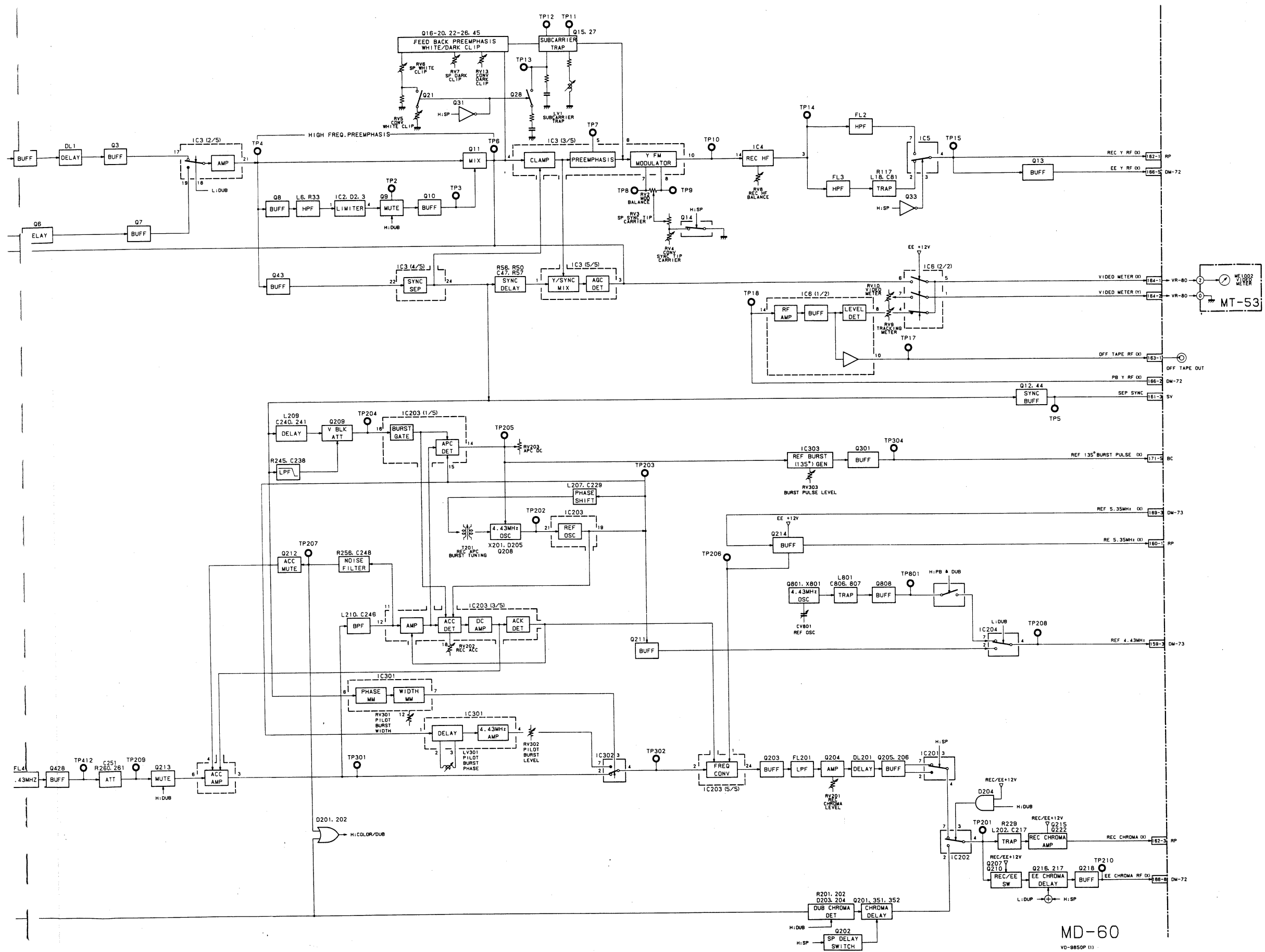
BLOCK DIAGRAM





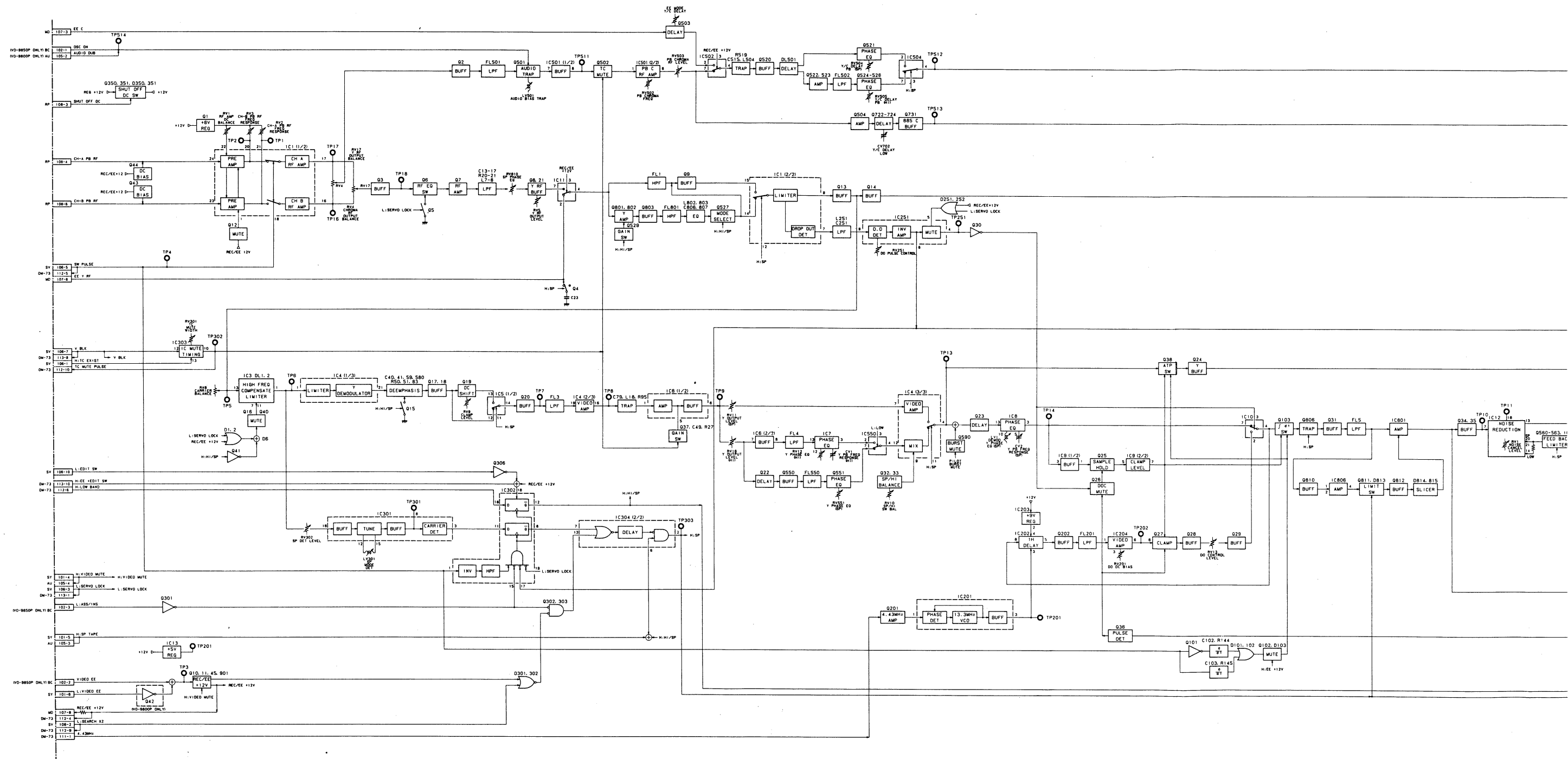
VIDEO SYSTEM
Y/C SEPARATOR, Y MODULATOR,
C REC PROCESSOR,
METER DRIVER

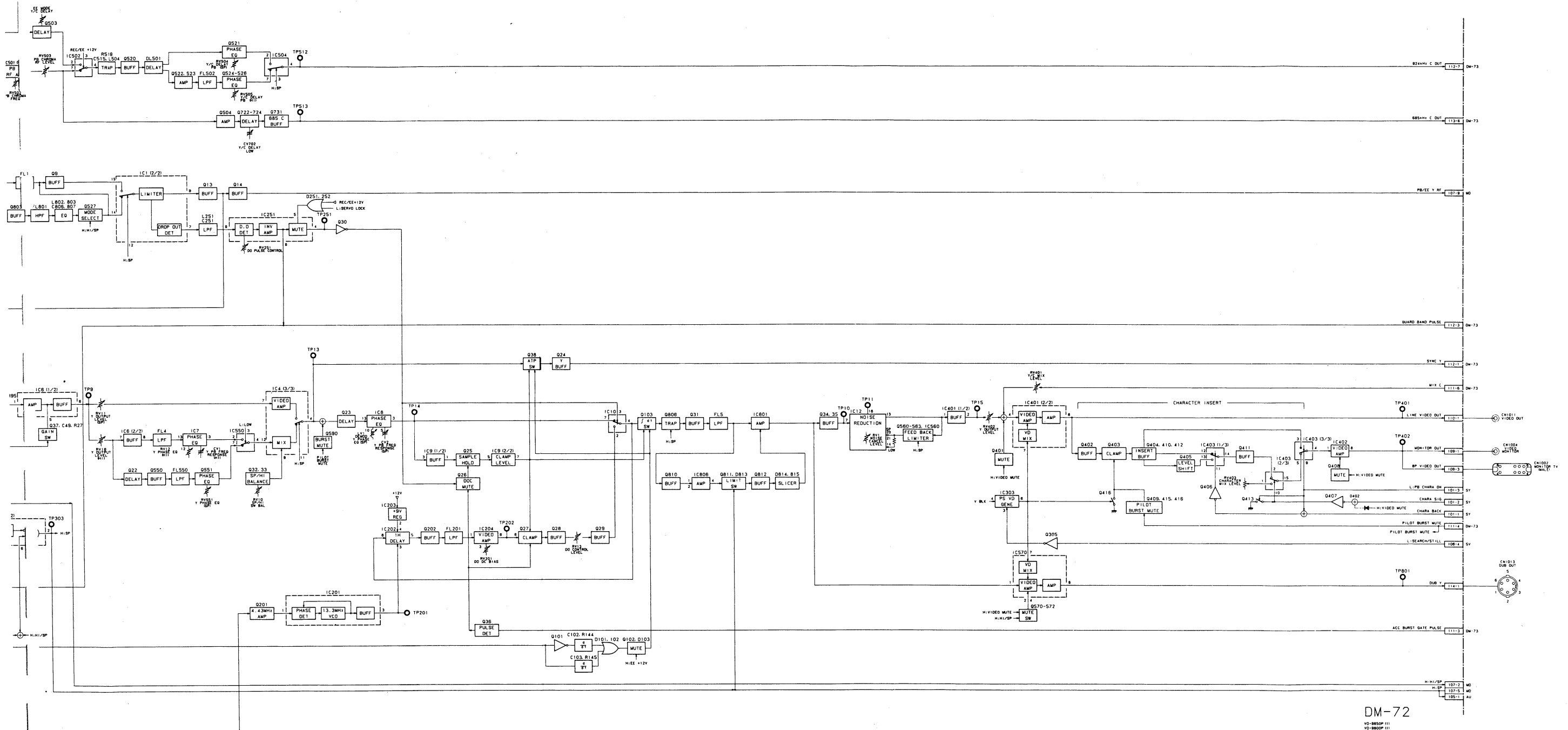




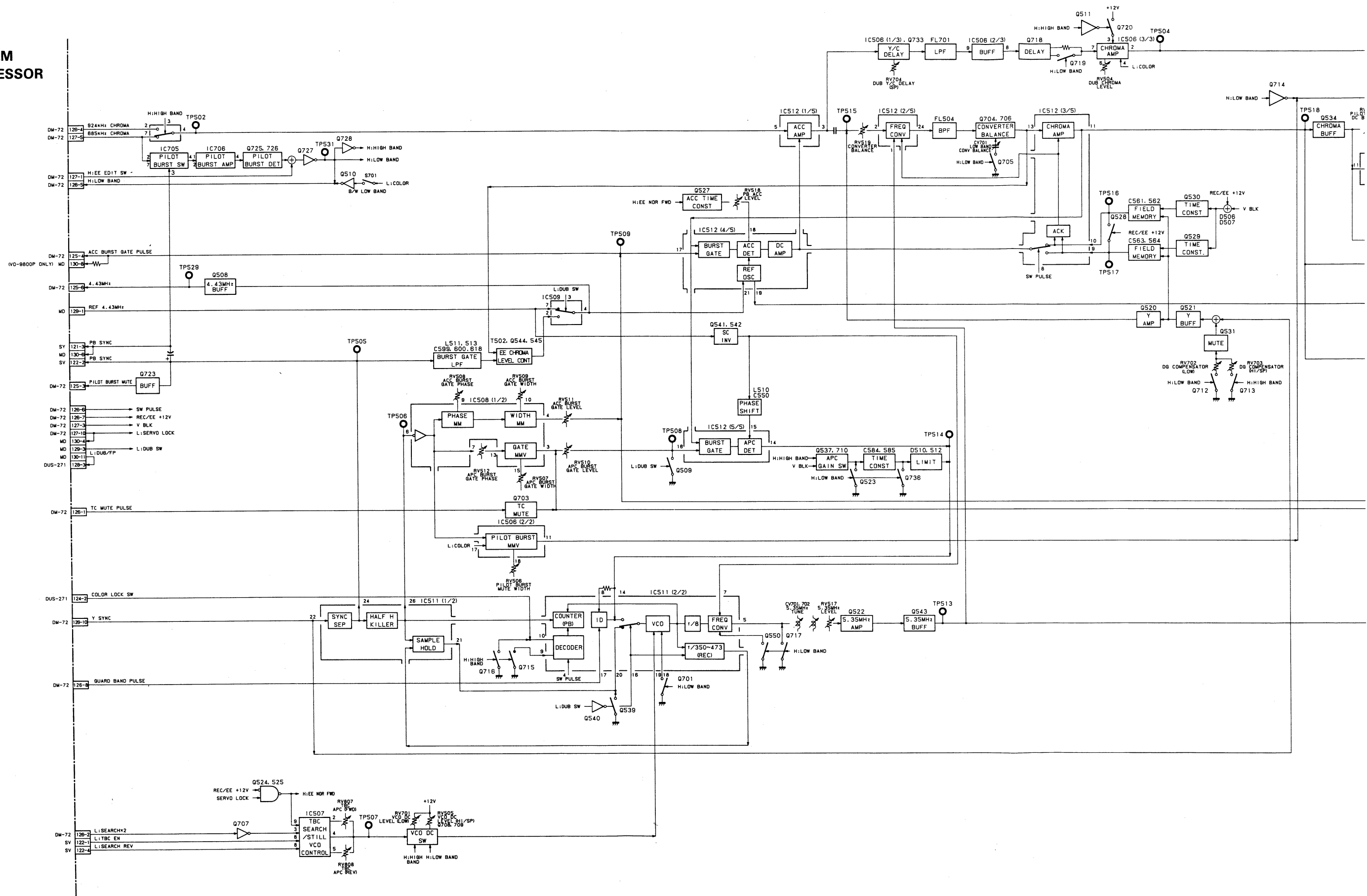
VIDEO SYSTEM

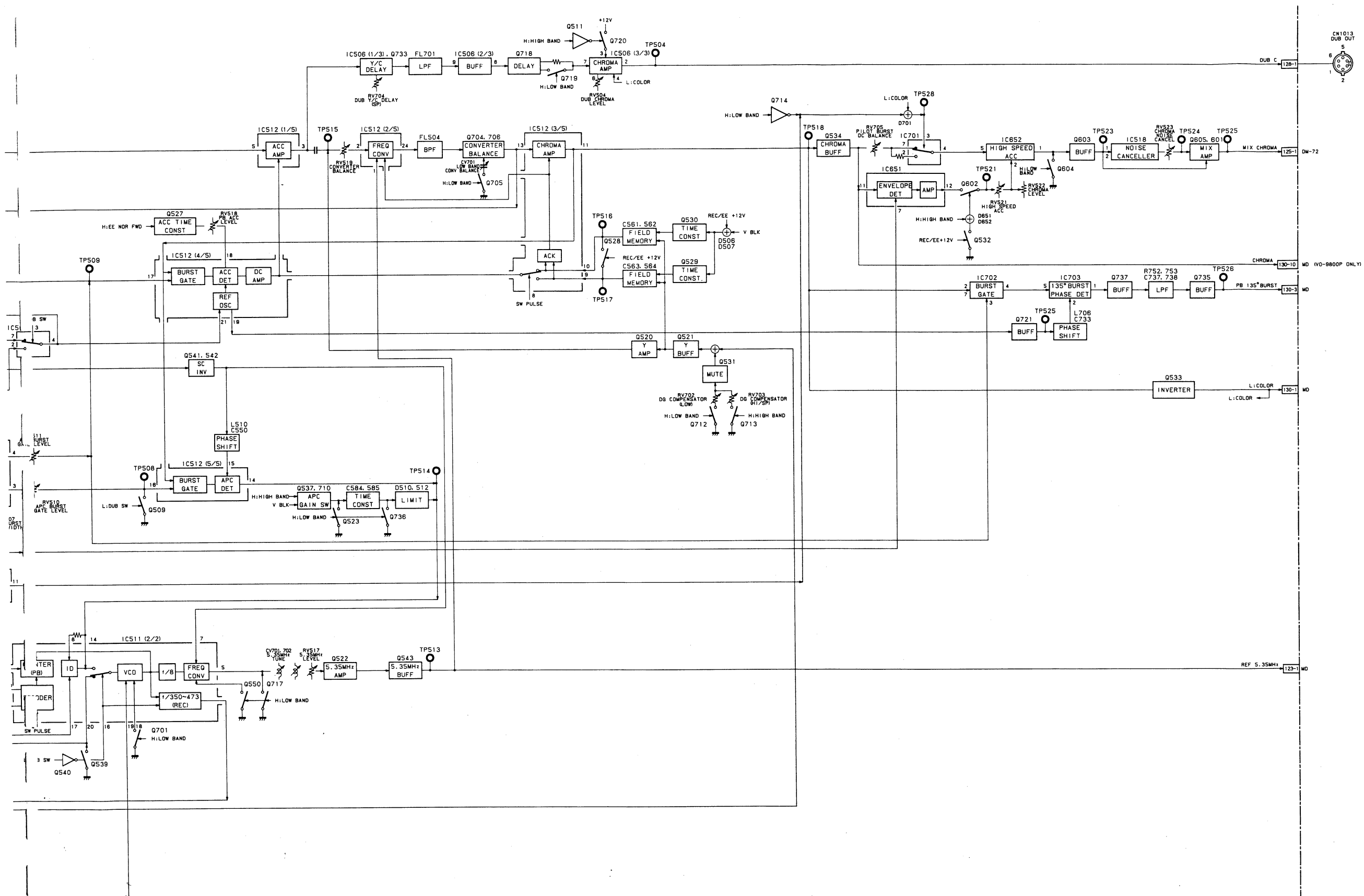
Y DEMODULATOR, SP DETECTOR,
CHARACTER MIXER



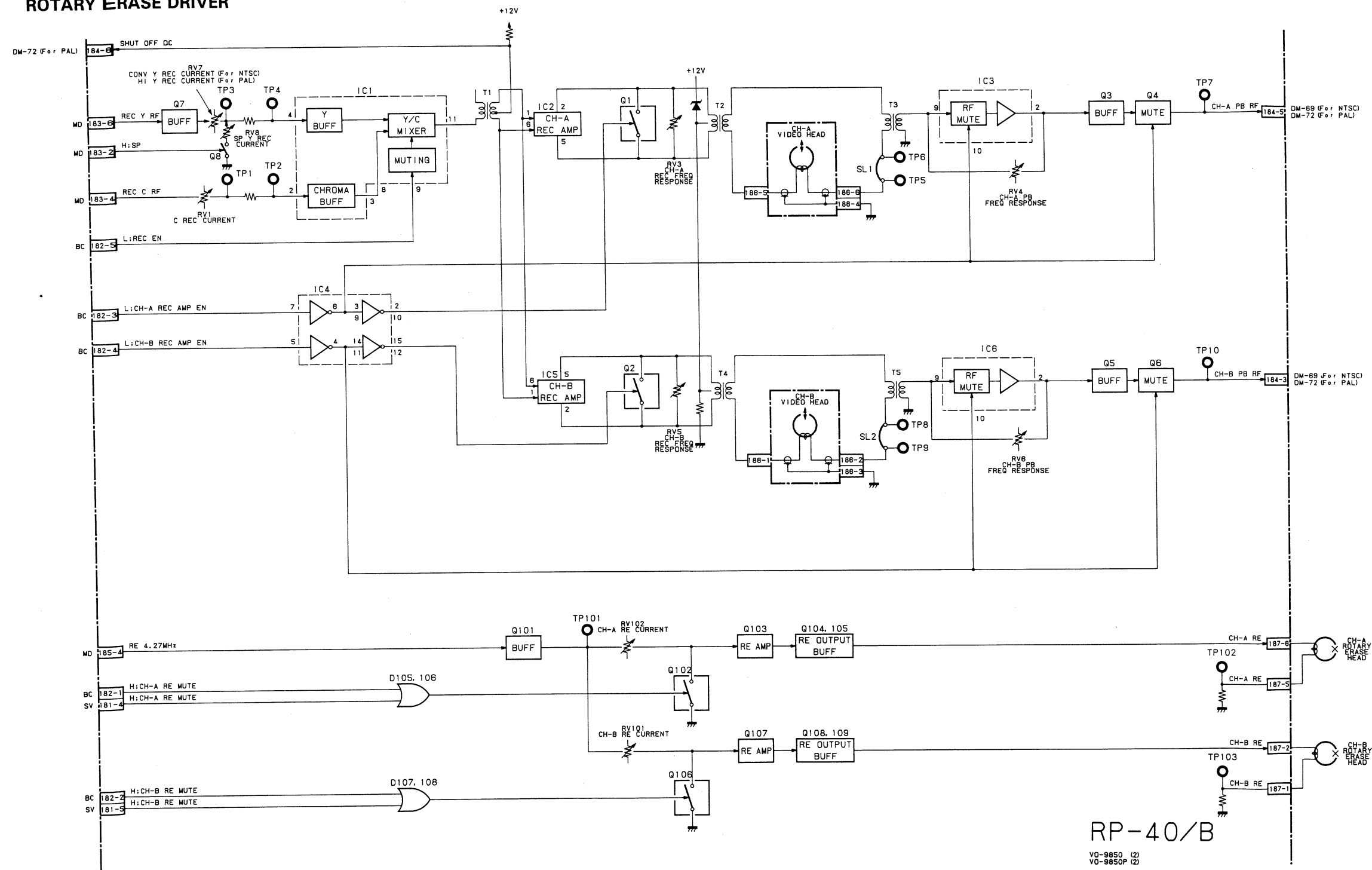


VIDEO SYSTEM C PB PROCESSOR



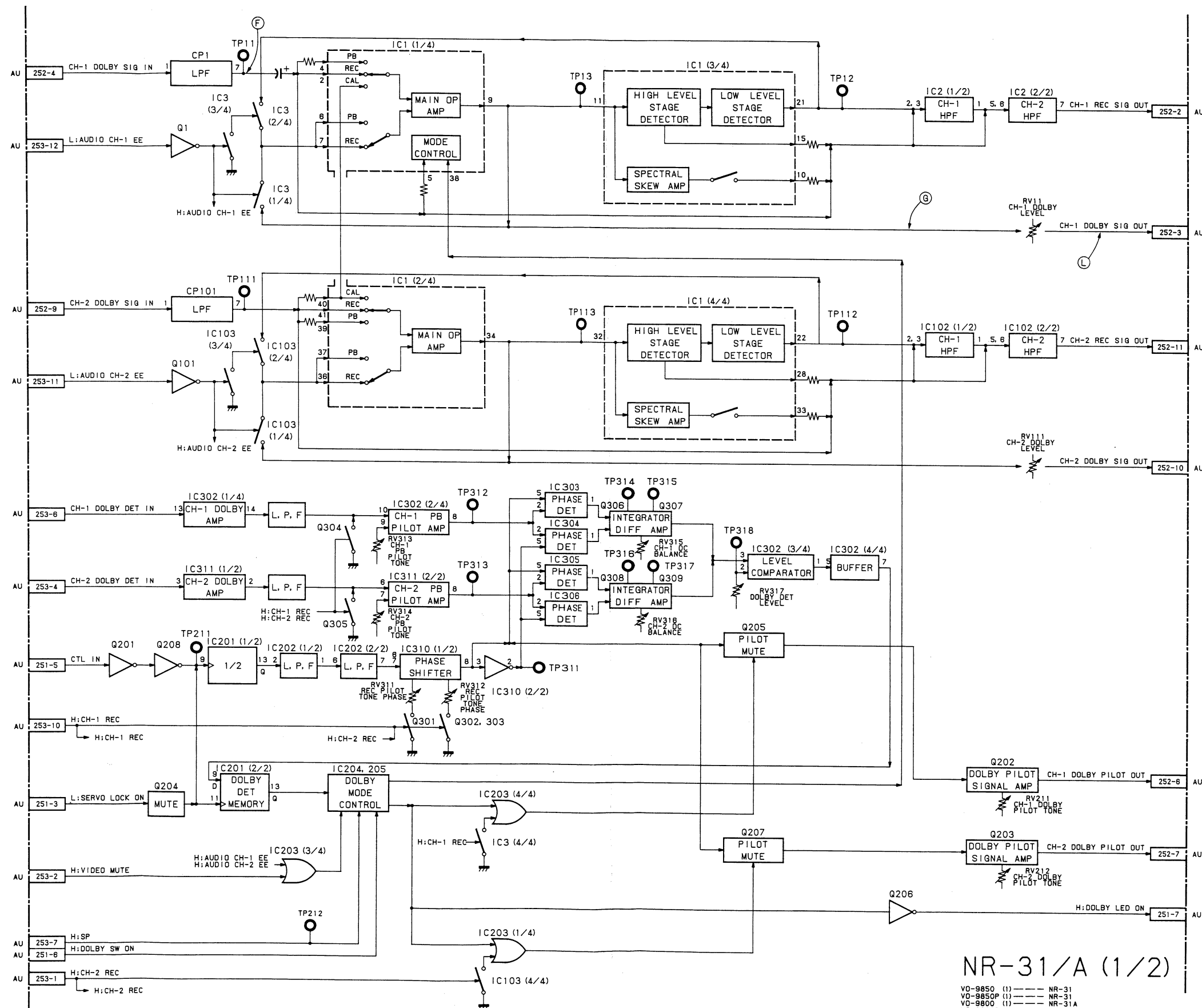


**VIDEO SYSTEM
REC/PB AMPLIFIER,
ROTARY ERASE DRIVER**



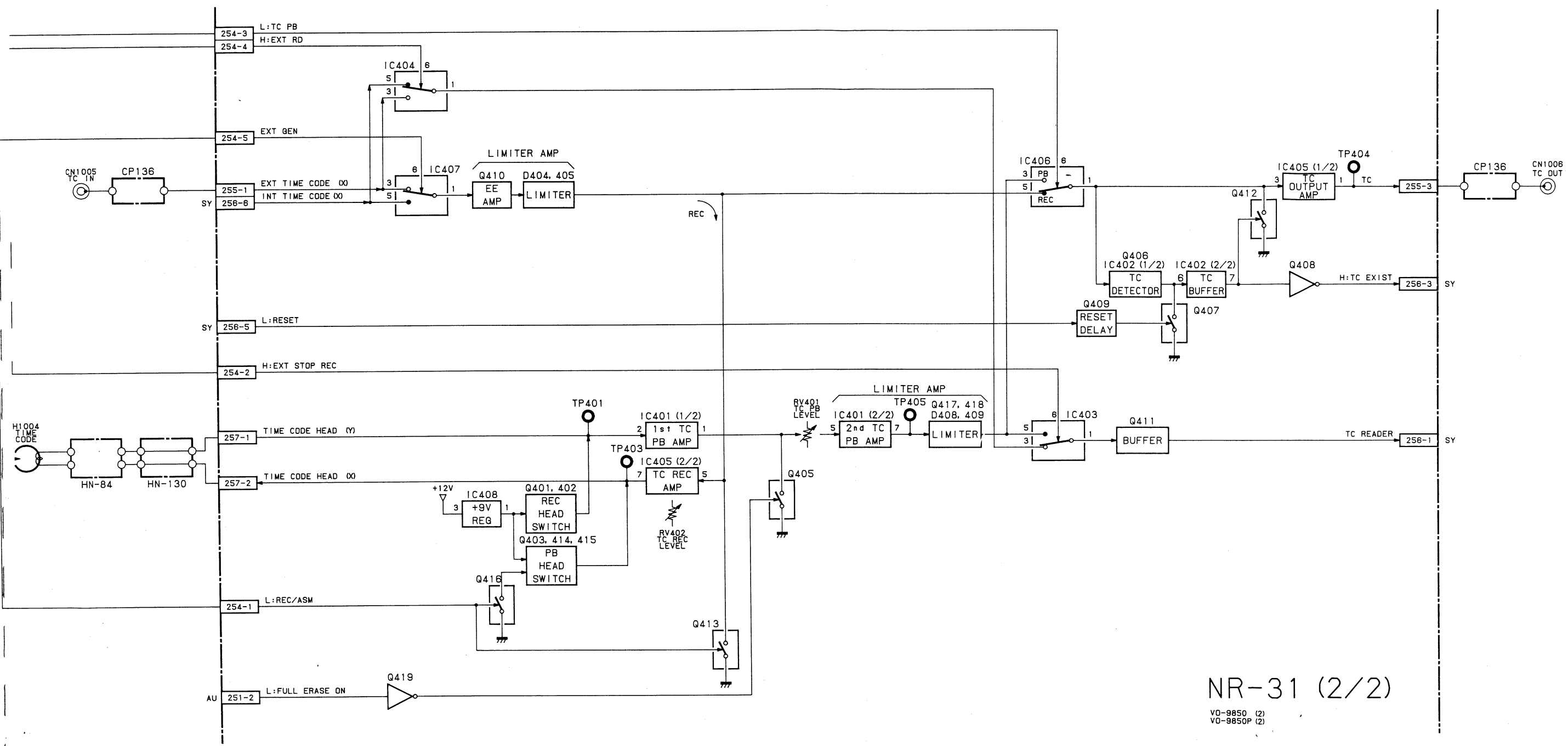
AUDIO AUDIO

AUDIO SYSTEM DOLBY NR, NR PILOT REC/PB



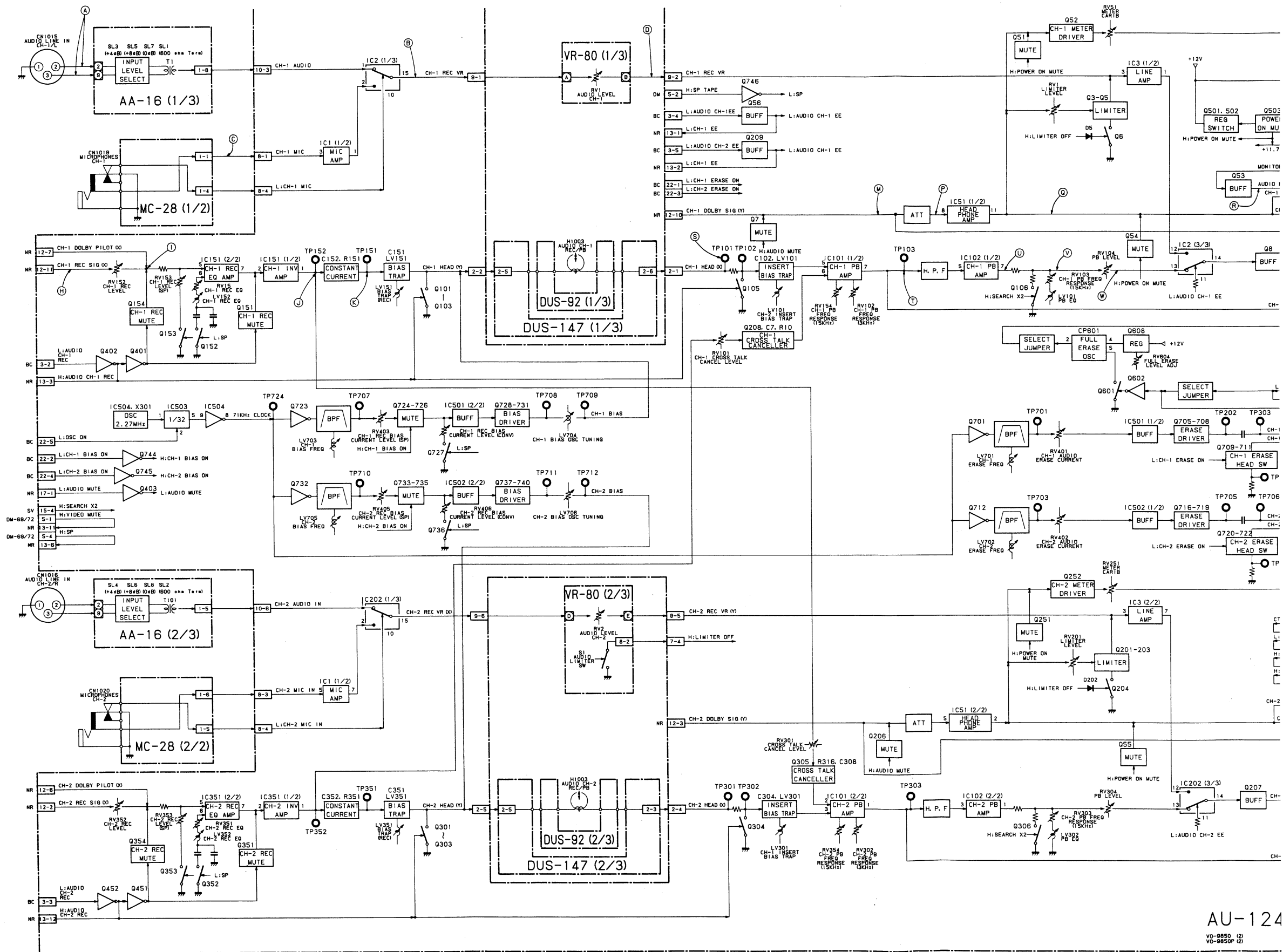
AUDIO AUDIO

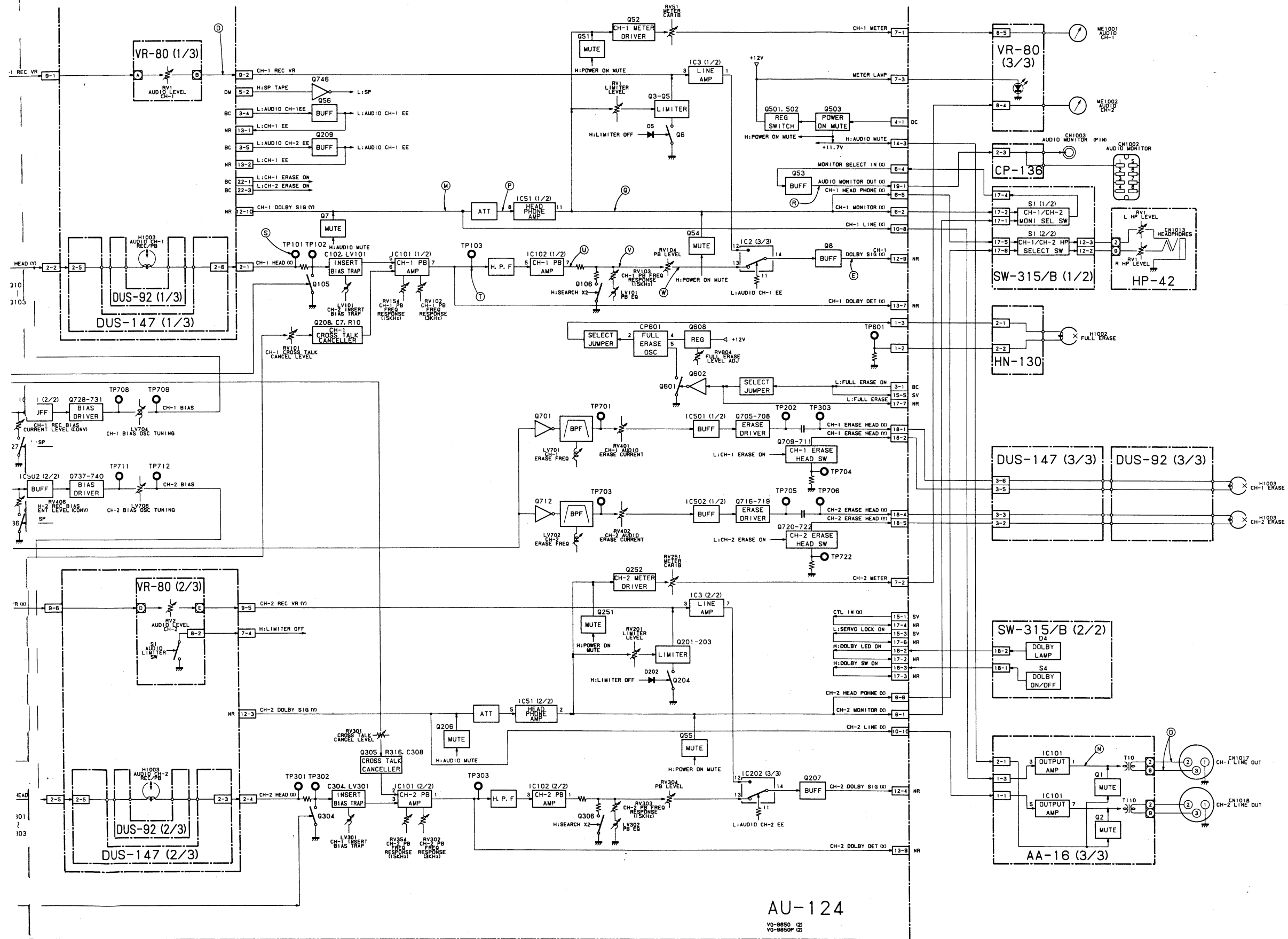




NR-31 (2/2)
 VO-9850 (2)
 VO-9850P (2)

AUDIO SYSTEM REC/PB AMPLIFIER ERASE/BIAS OSCILLATOR

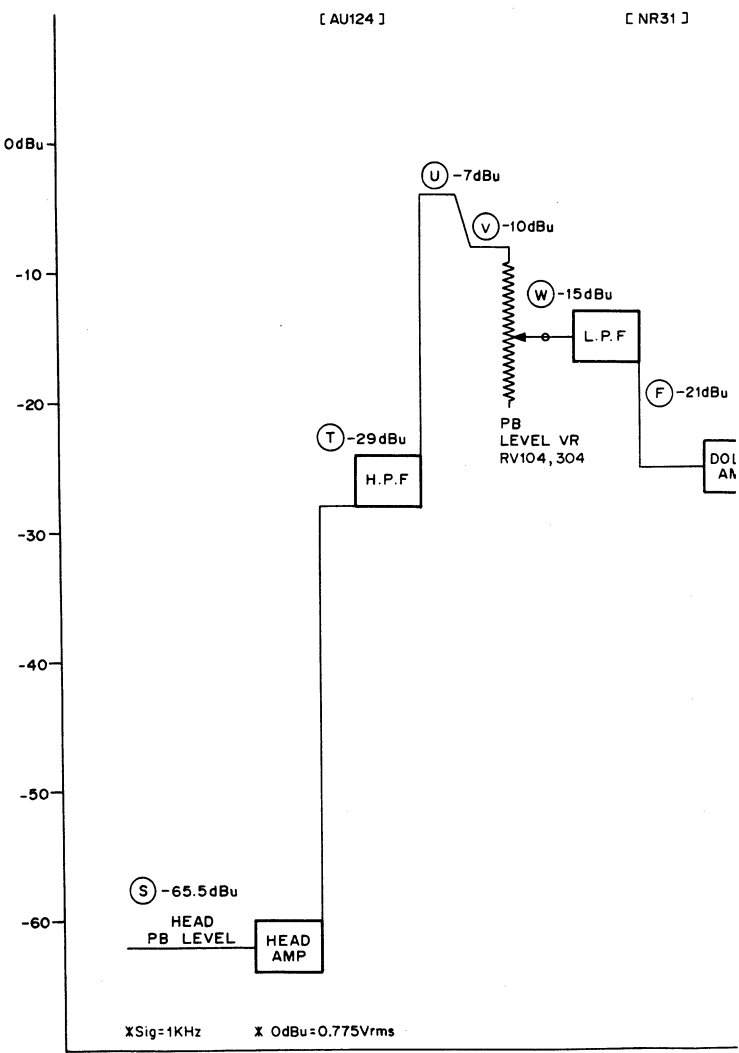
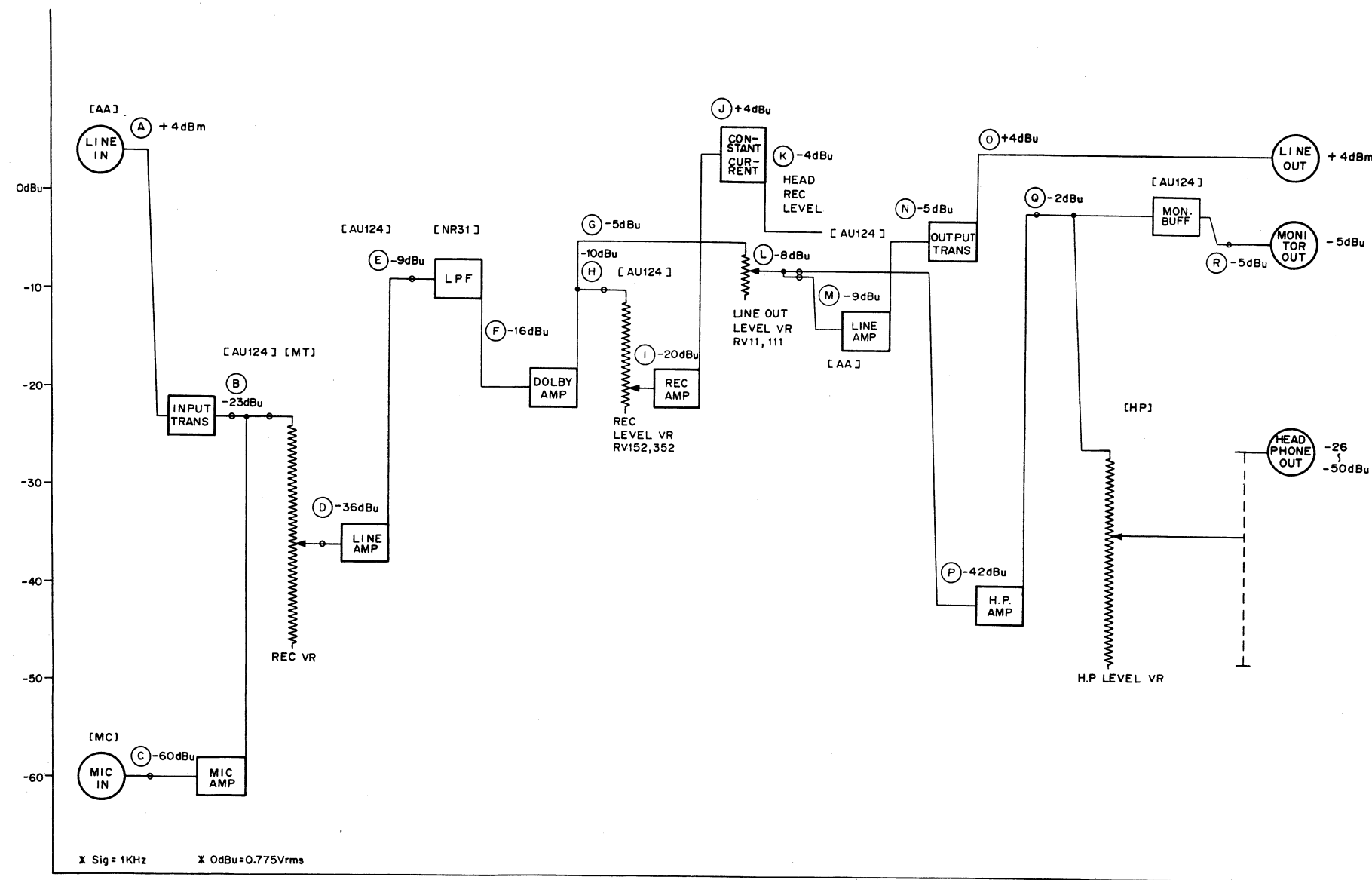




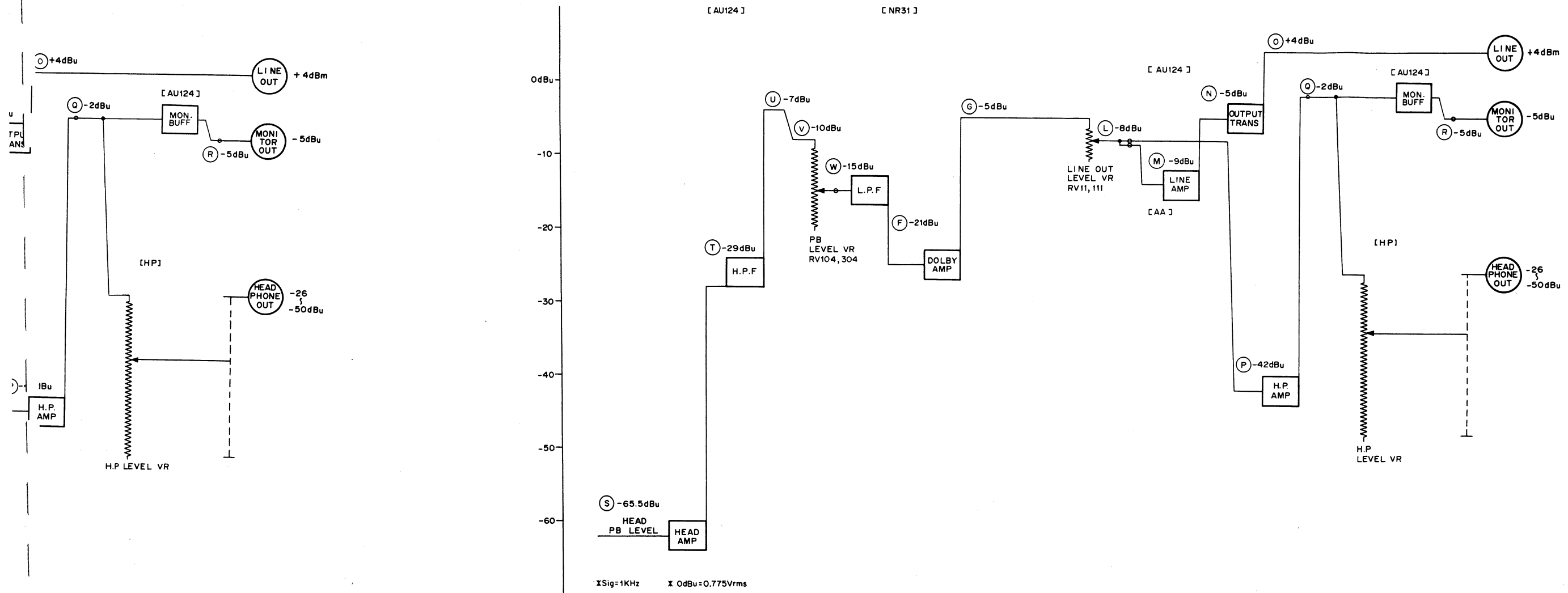
AUDIO LEVEL DIAGRAM

Audio Level Diagram EE, REC

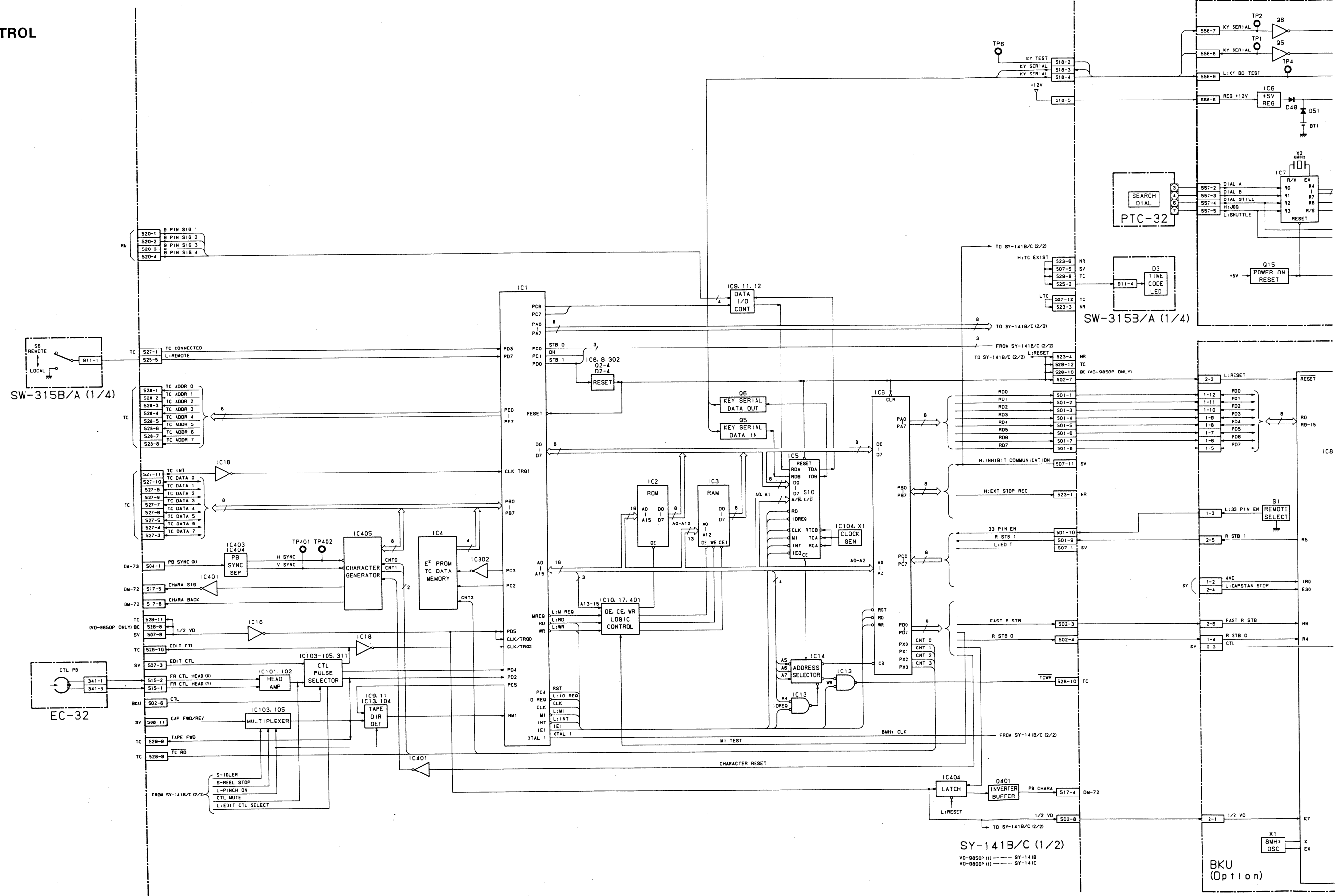
Auc

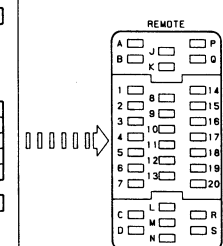


Audio Level Diagram **PB**

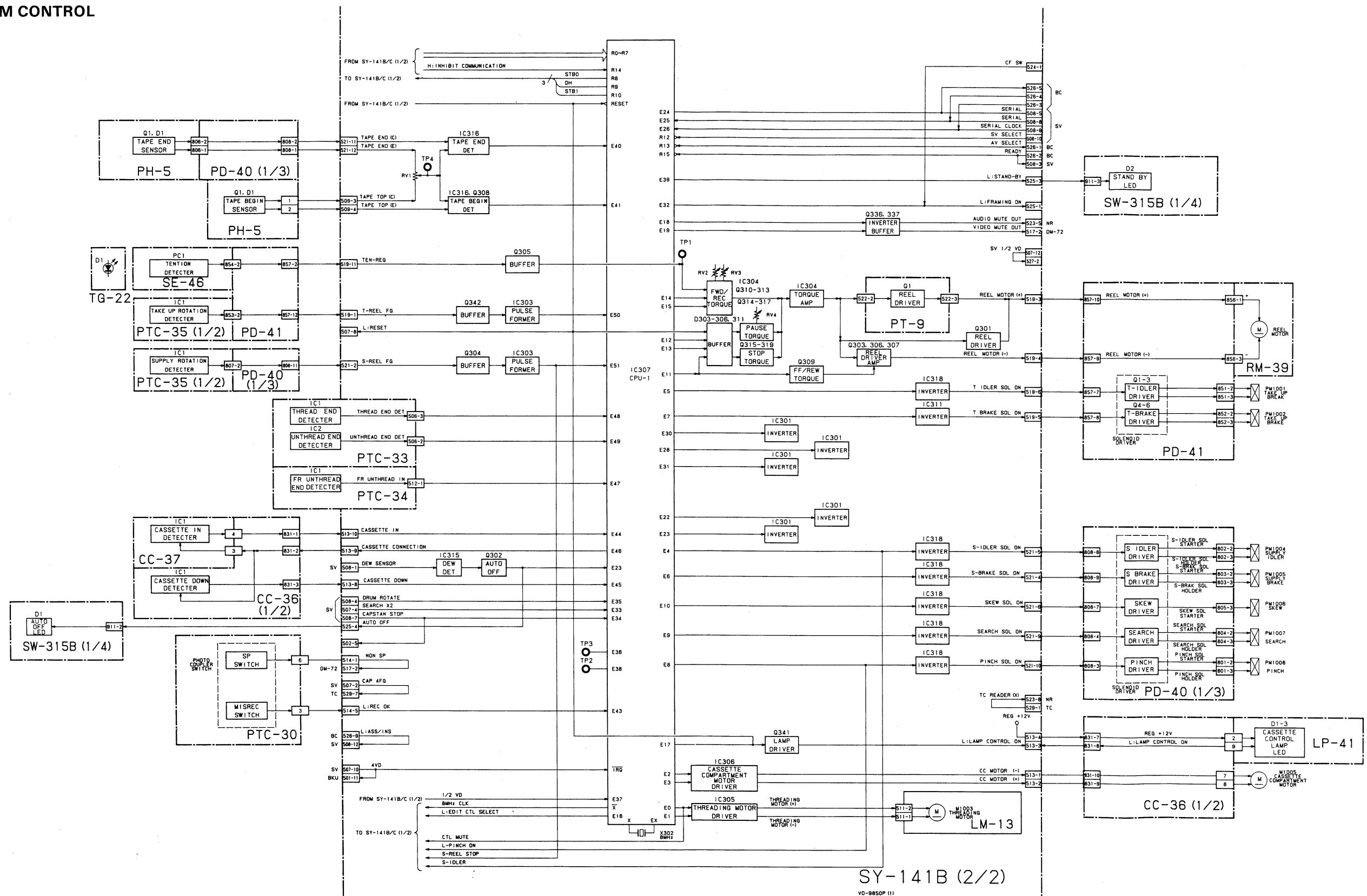


SW-315B/A (1/4)

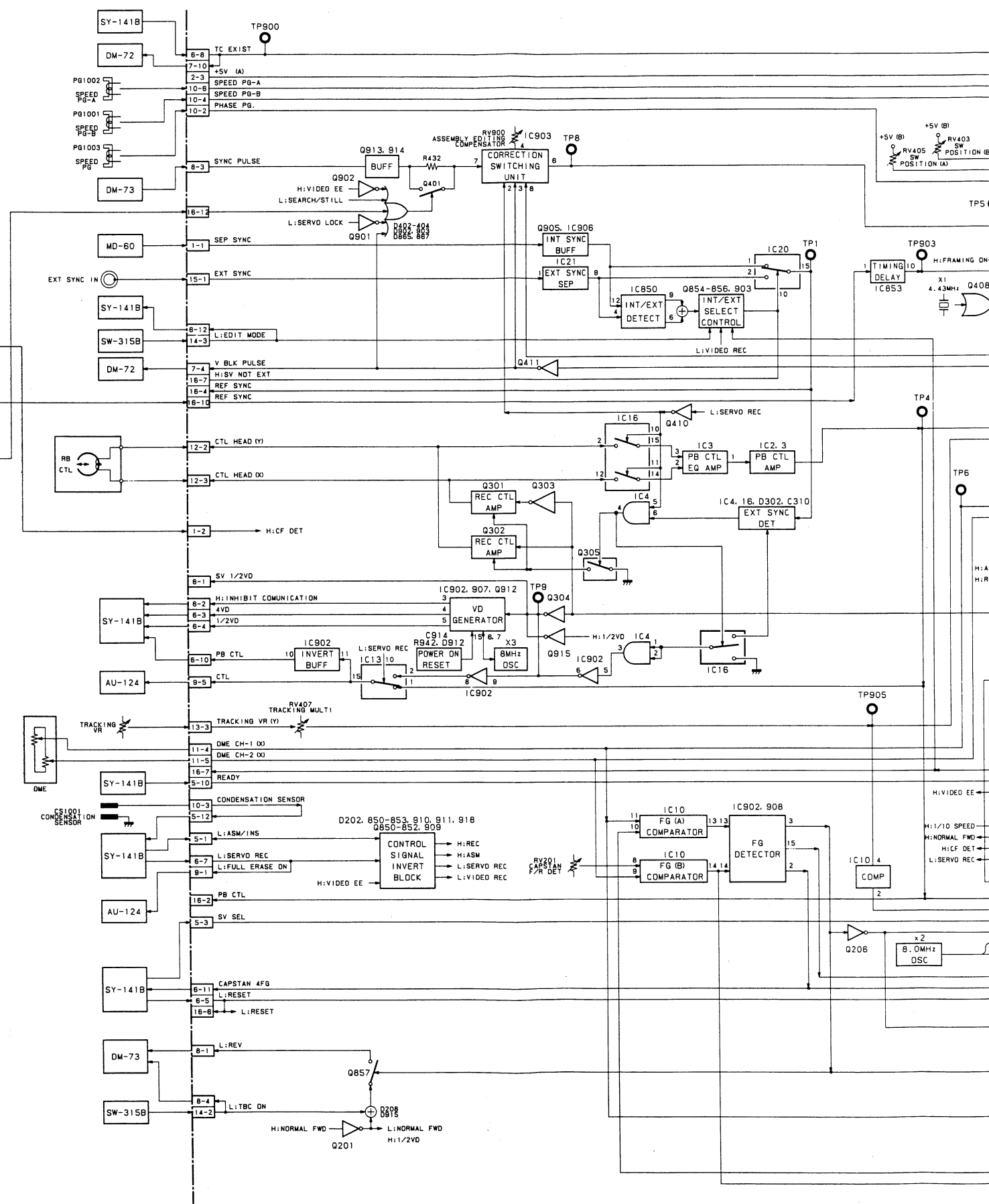


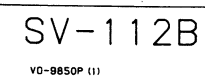


SYSTEM CONTROL



SERVO SERVO





SECTION 14

SEMICONDUCTOR ELECTRODES

ここに記載されているIC、トランジスタ、ダイオードは、それぞれの機能を等価的に表わしたものです。したがって互換性を表わすものではありません。(互換性のない型名が併記されている事もあります。)部品の交換をする時は、SPARE PARTSの章を参照して下さい。

ICs, transistors and diodes whose functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.

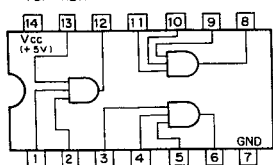
IC	PAGE	IC	PAGE	TRANSISTOR	PAGE
74F11PC	14-3	MB88303	14-11	2SA1115	14-16
74F32PC	14-3	MC14013BCP	14-12	2SA1175	14-16
		MC14538BCP	14-9	2SA1175F	14-16
AN607P	14-3	MC34051P	14-12	2SA768	14-16
AN608P	14-3			2SA771	14-16
		RC2043DD	14-12	2SB649A	14-16
BX1140L	14-3	RC78L05A	14-12	2SB733	14-16
BX1246L	14-3	RC78L09A	14-12	2SB822	14-16
BX1248L	14-3			2SC1740S	14-16
BX1250L	14-3	SN16913P	14-12	2SC1815	14-16
BX1251L	14-3	SN74HC04N	14-12	2SC1826	14-16
BX1257	14-3	SN74HC08N	14-12	2SC2785	14-16
BX1264L	14-3	SN74HC126N	14-12	2SC2785F	14-16
BX1265L	14-4	SN74HC139N	14-12	2SC2785K	14-16
BX373AL	14-4	SN74HC14N	14-13	2SC2878	14-16
BX388L	14-4	SN74HC32N	14-13	2SC3064	14-16
BX389L	14-4	SN74HC74N	14-13	2SC403SP	14-16
BX3915A	14-4			2SD1055	14-16
		TA706DAP	14-13	2SD1111	14-16
CX131A	14-4	TC4001UBP	14-13	2SD1682	14-16
CX134A	14-4	TC4009UBP	14-13	2SD669A	14-17
CX135	14-4	TC4011BP	14-13	2SD773	14-17
CX188	14-4	TC4015BP	14-13	2SD774	14-17
CX194B	14-5	TC4016BPHB	14-13	2SD894	14-17
CX20060	14-5	TC4024BP	14-14	2SD998	14-17
CX20061	14-5	TC4030BPHB	14-14	2SK523	14-17
CX20188	14-6	TC4053BP	14-14		
CX22013	14-7	TC4053BPHB	14-14	DTA124XS	14-17
CX23028	14-6	TC4069UBP	14-14	DTA143XS	14-17
CX859	14-7	TC4071BP	14-14	DTA144ES	14-17
CX872	14-7	TC4081BP	14-14	DTC124ES	14-17
CXA1020P	14-8	TC4538BP	14-9	DTC124XS	14-17
CXD1095Q	14-8	TMPZ84C011AF	14-15	DTC143TS	14-17
CXL5001P	14-9			DTC144ES	14-17
CXL5005P	14-9	μPC324C	14-14		
		μPC339C	14-14	SPS102	14-17
HD14538BP	14-9	μPC358C	14-14		
		μPC4558C	14-16		
LA4550	14-9	μPC78L05A	14-16		
LM2903DQ	14-9	μPC78M05H	14-16		
M50747H-601SP	14-10				
M5215L	14-10				
M54516P	14-10				
M54543L	14-10				
M54562P	14-11				
MB88201H-539N	14-11				

等価回路はICメーカーのData Bookに従いました。

The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

DIODE	PAGE
10E-2	14-17
1S1555S	14-17
1SS119	14-17
1SS133	14-17
1SS97	14-17
1SS97-1	14-17
1SS99	14-17
 BR5104S	 14-17
 FC54M	 14-17
 GL-5HD5	 14-17
GP-1L52	14-17
GP-1L53	14-17
 LB402VK	 14-17
 RD??EB?	 14-17
RD??ESB?	14-17
 TLUG154	 14-17
 U05E	 14-17

74F11PC (FSC)
TTL 3-INPUT POSITIVE-AND GATE
— TOP VIEW —

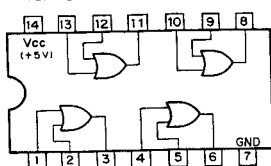


$$A \quad B \quad C \quad Y = A \cdot B \cdot C = \overline{A + B + C}$$

A	B	C	Y
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

0: LOW LEVEL
1: HIGH LEVEL

74F32PC (FSC)
TTL 2-INPUT POSITIVE-OR GATE
— TOP VIEW —

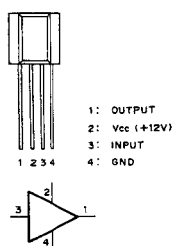


$$A \quad B \quad Y = A + B = \overline{A \cdot B}$$

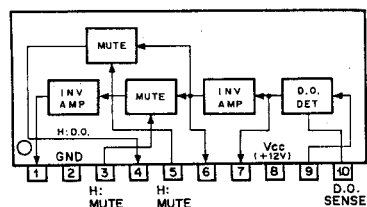
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0: LOW LEVEL
1: HIGH LEVEL

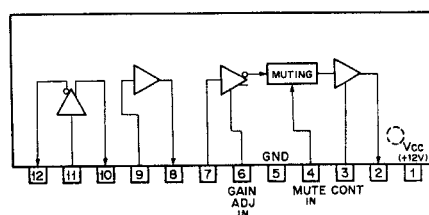
AN607P (MATSUSHITA)
AN608P (MATSUSHITA)
WIDE BAND AMPLIFIER
— PRINTED SIDE VIEW —



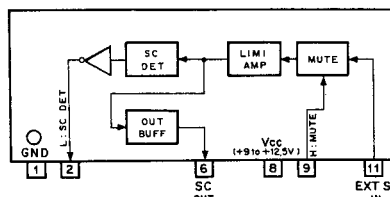
BX1248L (ROHM)
DROPOUT DETECTOR
— PRINTED SIDE VIEW —



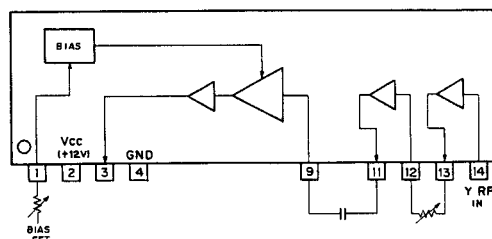
BX1250L (ROHM)
CHROMA OUTPUT AMPLIFIER
— REAR VIEW —



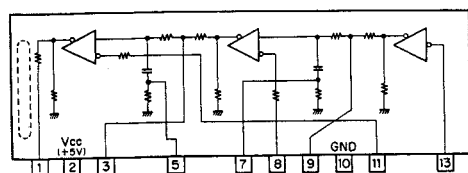
BX1251L (ROHM)
EXTERNAL SUBCARRIER AMPLIFIER
— PRINTED SIDE VIEW —



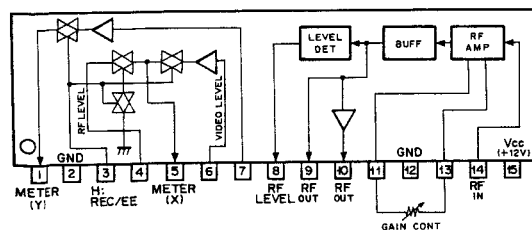
BX1257 (SONY)
Y-RF SIDE BAND EQUALIZER
— PRINTED SIDE VIEW —



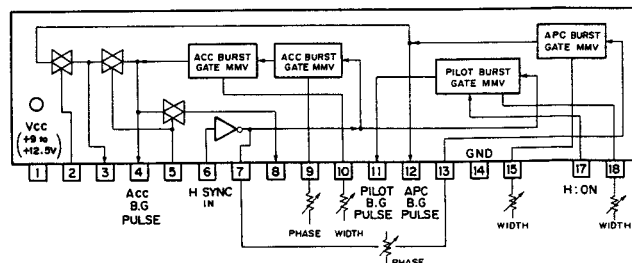
BX1140L (ROHM)
HF AMP
— REAR VIEW —



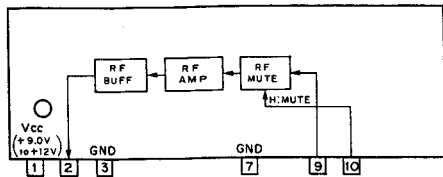
BX1246L (ROHM)
RF AND VIDEO LEVEL METER DRIVER
— PRINTED SIDE VIEW —



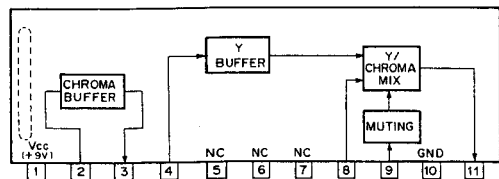
BX1264L (ROHM)
ACC/APC BURST GATE PULSE GENERATOR
— PRINTED SIDE VIEW —



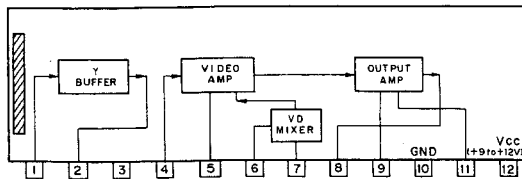
BX1265L (ROHM)
VIDEO HEAD AMPLIFIER/MUTING
— PRINTED SIDE VIEW —



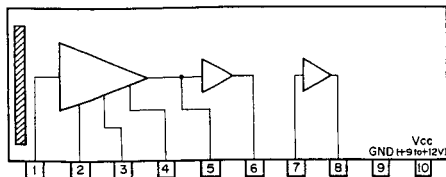
BX373AL (ROHM)
MIX AMP
— REAR VIEW —



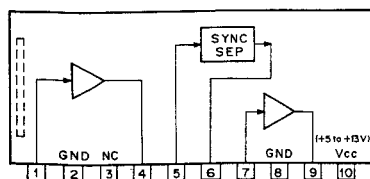
BX388L (ROHM)
VIDEO AMP/VD MIXER
— PRINTED SIDE —



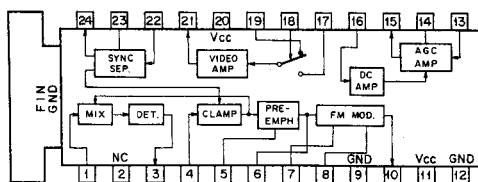
BX389L (ROHM)
VIDEO AMPLIFIER
— PRINTED SIDE —



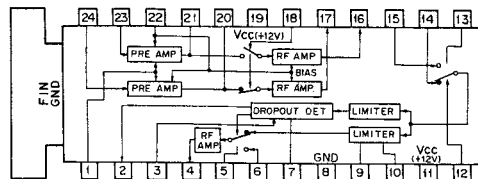
BX3915A (SONY)
SYNC SEPARATOR
— PRINTED SIDE —



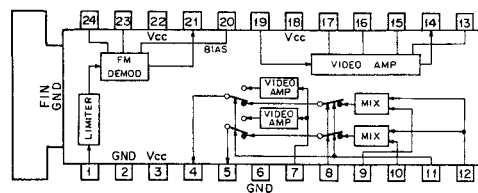
CX131A (SONY)
— TOP VIEW —



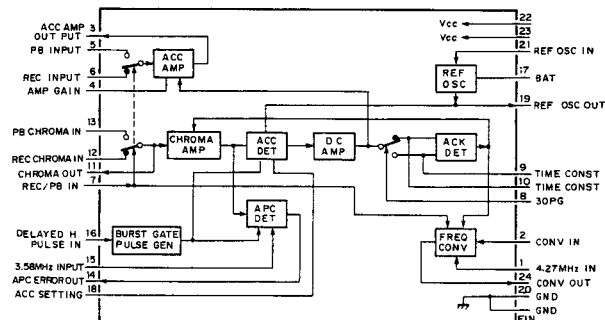
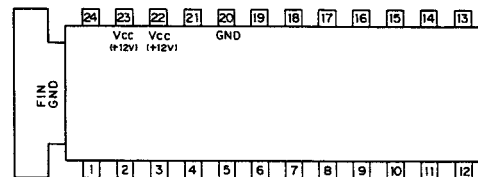
CX134A (SONY)
HEAD AMP/DROPOUT COMPENSATOR
— TOP VIEW —



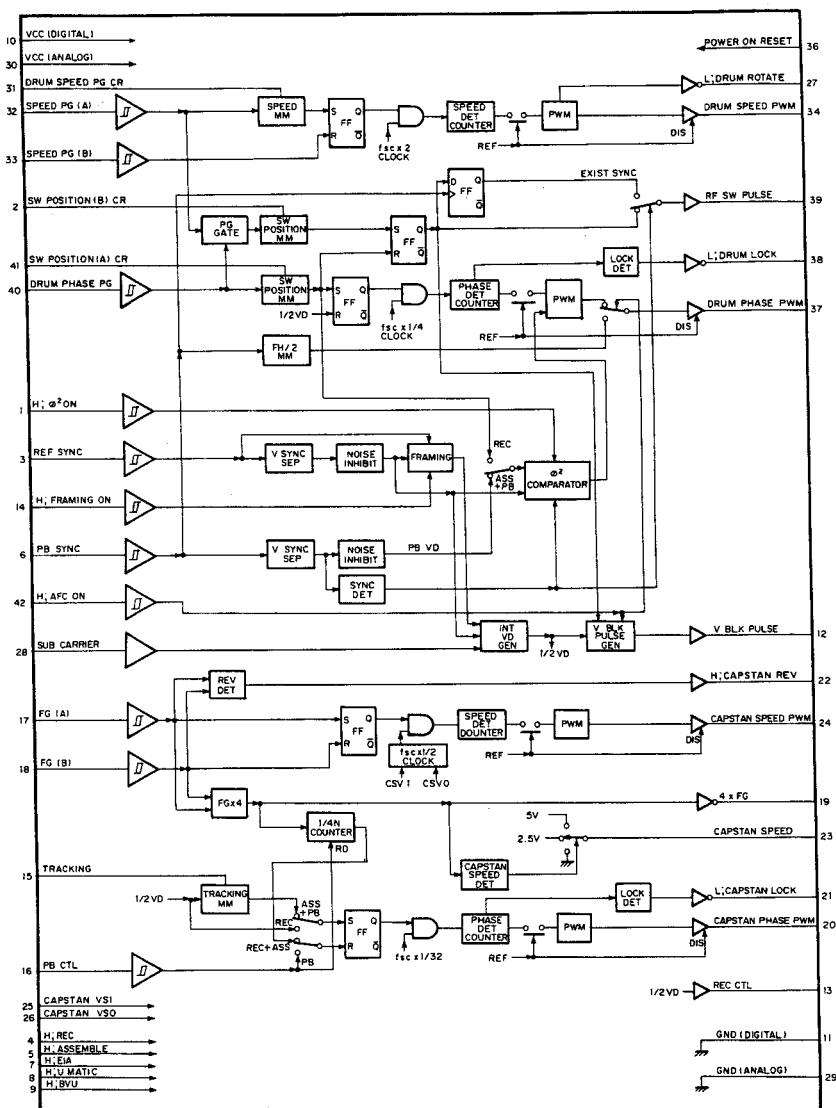
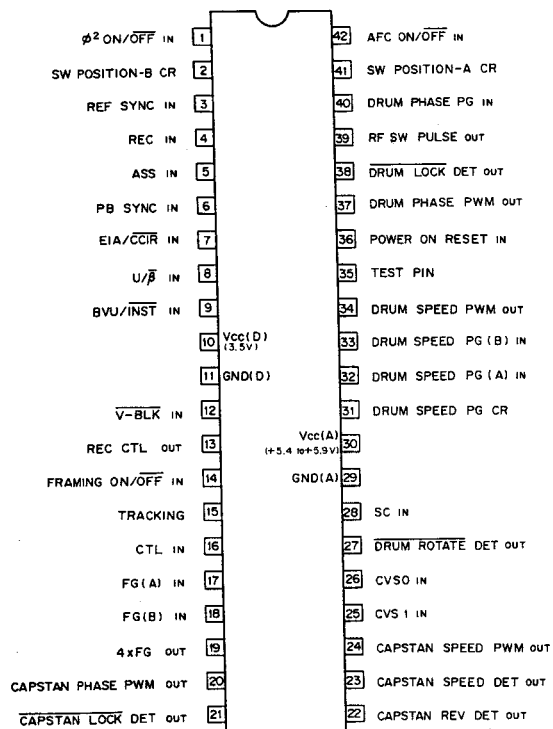
CX135 (SONY)
— TOP VIEW —



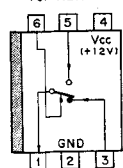
CX188
CHROMINANCE SIGNAL PROCESSOR
— TOP VIEW —



CX194B (SONY)
DRUM/CAPSTAN PWM SERVO
— TOP VIEW —

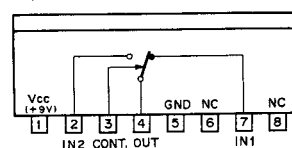


CX20060 (SONY)
ANALOG SWITCH
— TOP VIEW —



CONT. INPUT (PIN 6)	SW
LOW OR OPEN	
HIGH	

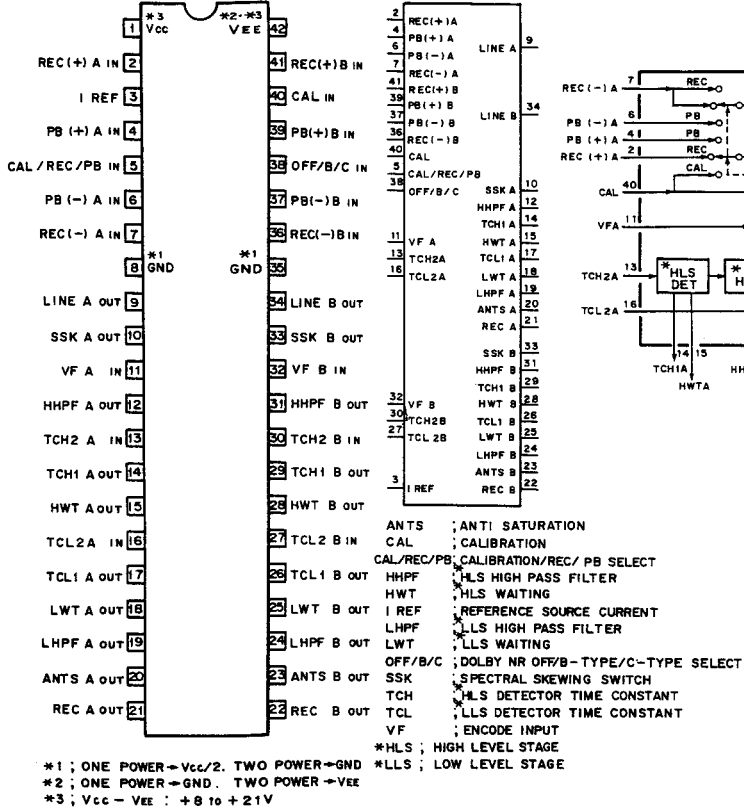
CX20061 (SONY)
ANALOG SWITCH
— SIDE VIEW —



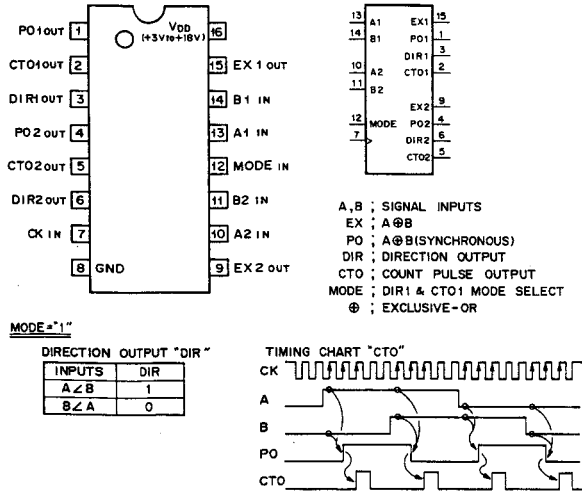
CONT	SW
0	
1	

0; LOW LEVEL
1; HIGH LEVEL

CX20188 (SONY)
DOLBY B TYPE AND C TYPE, NOISE REDUCTION SYSTEM
— TOP VIEW —



CX23028 (SONY)
CMOS SYNCHRONOUS ROTATIONAL DIRECTION DETECTOR
— TOP VIEW —



MODE="0"

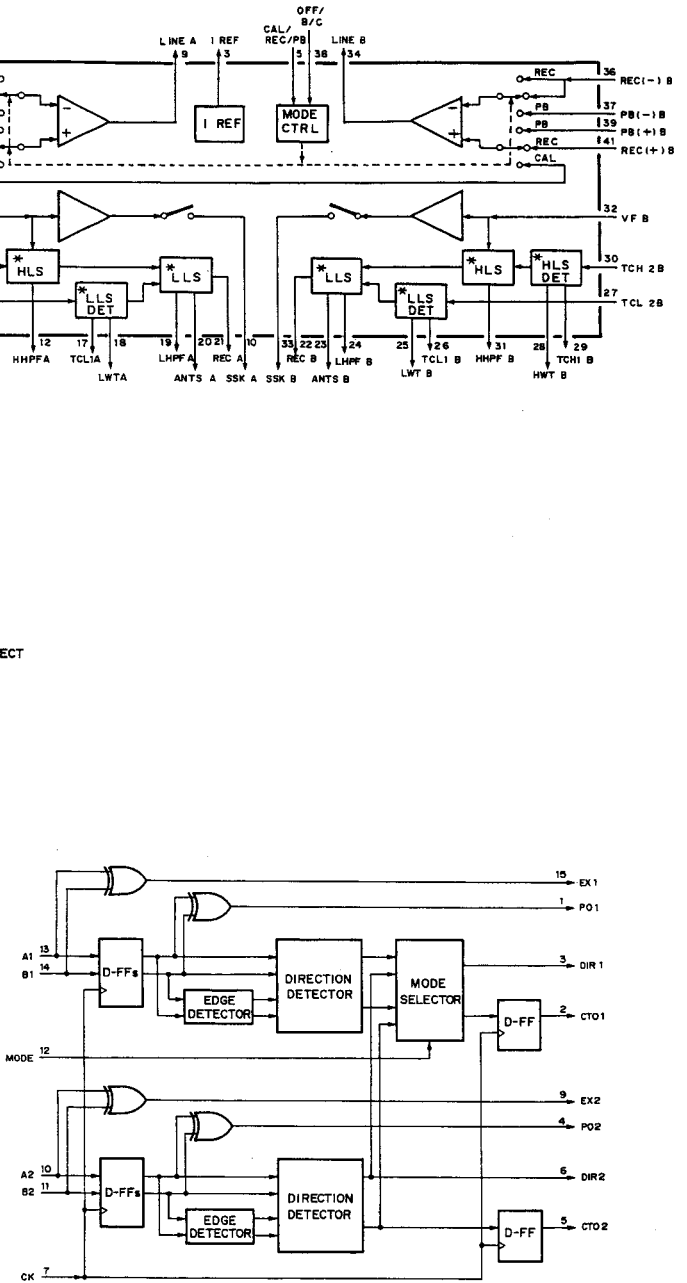
DIRECTION OUTPUT "DIR"

INPUTS		DIR 1	DIR 2
CH1	CH2		
A1 < B1	A2 < B2	1	
B1 < A1	A2 < B2	0	
A1 < B1	B2 < A2		1
B1 < A1	B2 < A2		0

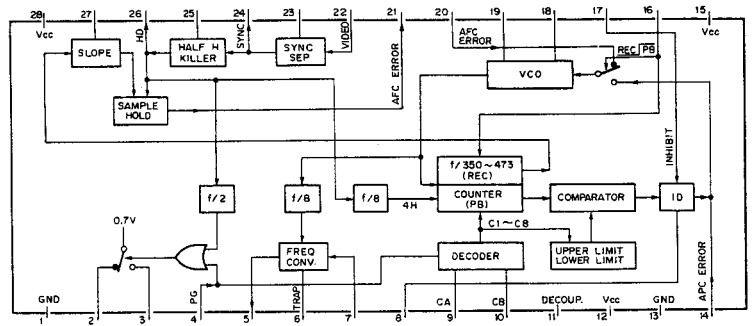
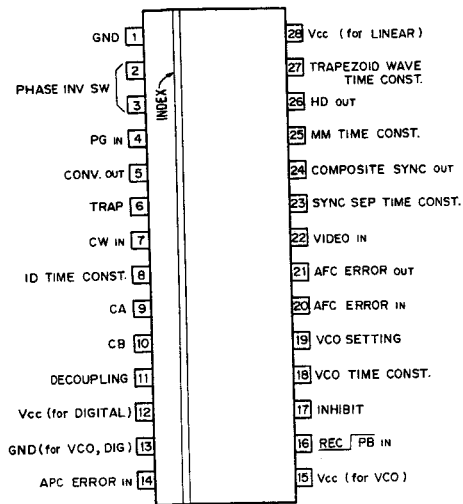
THE SAME FUNCTION OF MODE "1"

CTO 1: CTO1 with MODE "0" = CTO1 with MODE "1" + CTO 2
CTO 2: THE SAME FUNCTION OF MODE "1"

1: HIGH LEVEL
0: LOW LEVEL
A < B: THE PHASE OF SIGNAL A IS IN ADVANCE FOR THE PHASE OF B.



CX859 (SONY)
—TOP VIEW—



DECODER TRUTH TABLE

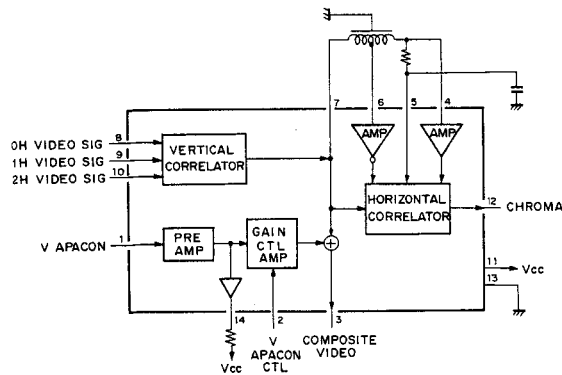
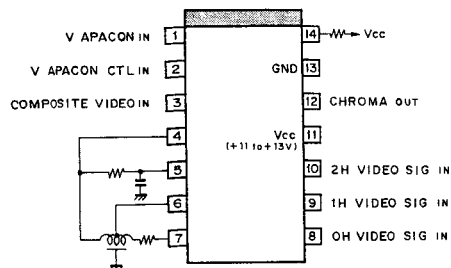
CB	CA	LOW	OPEN	HIGH
LOW	C1	C7	—	—
OPEN	C4	C5	C6	—
HIGH	—	*C2	C3	C8

* PG : L --- C2
PG : H --- C3

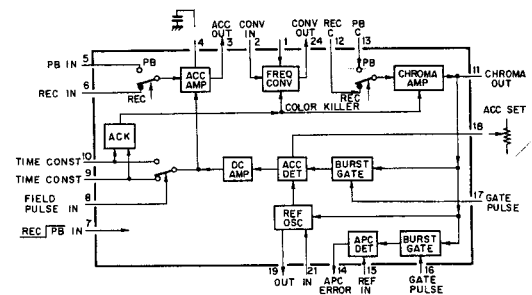
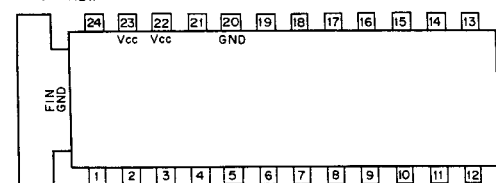
AFC/APC PRESET DATA

	AFC COUNT DOWN	APC ID COUNT
		UPPER LIM. LOWER LIM.
C1	$f/473$	105 95
C2	$f/351$	129 119
C3	$f/353$	137 127
C4	$f/351$	118 104
C5	$f/351$	131 117
C6	$f/351$	144 130
C7	$f/350$	136 104
C8	—	125 115

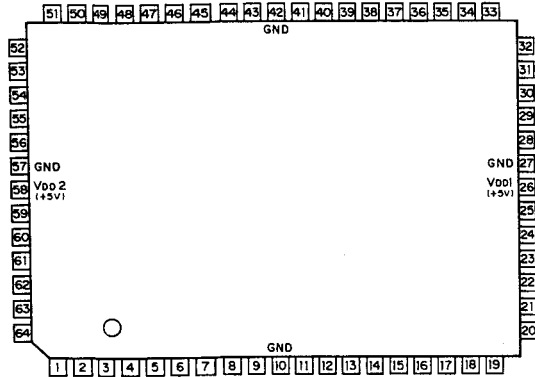
CX22013 (SONY)
DYNAMIC COMB FILTER
—TOP VIEW—



CX872 (SONY)
—TOP VIEW—



CXD1095Q (SONY) FLAT PACKAGE
C-MOS I/O PORT EXPANDER
— TOP VIEW —

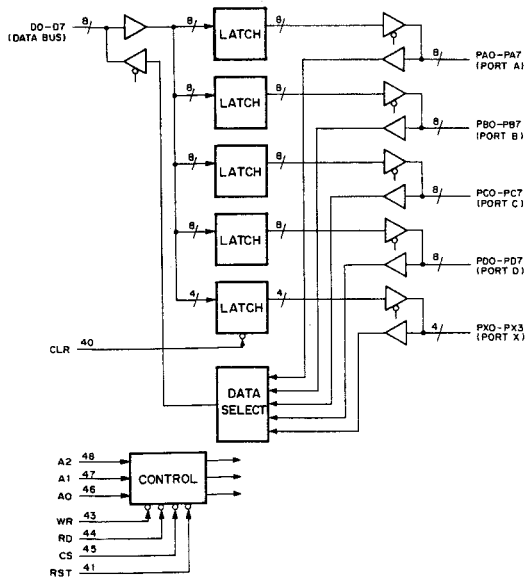


PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL
1			NC	17	O	O	PC6	33			NC	49	O	O	PX0
2			NC	18	O	O	PC7	34			NC	50	O	O	PX1
3	O	O	PB1	19			NC	35	O	O	D3	51			NC
4	O	O	PB2	20	O	O	PD0	36	O	O	D4	52	O	O	PX2
5	O	O	PB3	21	O	O	PD1	37	O	O	D5	53	O	O	PX3
6	O	O	PB4	22	O	O	PD2	38	O	O	D6	54	O	O	PA0
7	O	O	PB5	23	O	O	PD3	39	O	O	D7	55	O	O	PA1
8	O	O	PB6	24	O	O	PD4	40	O		CLR	56	O	O	PA2
9	O	O	PB7	25			GND	41	O		RST	57			GND
10			GND	26	O		VDD1(+5V)	42			GND	58	O		VDD1(+5V)
11	O	O	PC0	27	O	O	PD5	43	O		WR	59	O	O	PA3
12	O	O	PC1	28	O	O	PD6	44	O		RD	60	O	O	PA4
13	O	O	PC2	29	O	O	PD7	45	O		CS	61	O	O	PA5
14	O	O	PC3	30	O	O	D0	46	O		A0	62	O	O	PA6
15	O	O	PC4	31	O	O	D1	47	O		A1	63	O	O	PA7
16	O	O	PC5	32	O	O	D2	48	O		A2	64	O	O	PB0

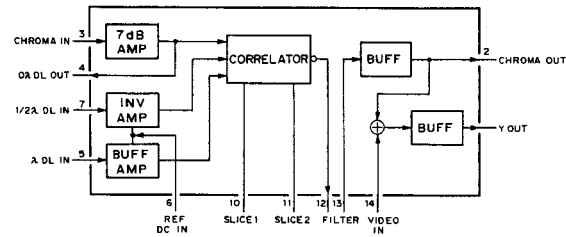
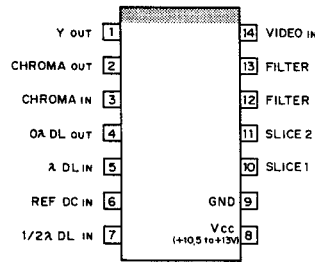
CS	RD	WR	A2	A1	A0	MODE
0	0	1	0	0	0	PORT A → DATA BUS
0	0	1	0	0	1	PORT B → DATA BUS
0	0	1	0	1	0	PORT C → DATA BUS
0	0	1	0	1	1	PORT D → DATA BUS
0	0	1	1	0	0	PORT X → DATA BUS
0	0	1	1	0	1	—
0	0	1	1	1	0	—
0	0	1	1	1	1	—
0	1	0	0	0	0	DATA BUS → PORT A
0	1	0	0	0	1	DATA BUS → PORT B
0	1	0	0	1	0	DATA BUS → PORT C
0	1	0	0	1	1	DATA BUS → PORT D
0	1	0	1	0	0	DATA BUS → PORT X
0	1	0	1	0	1	—
0	1	0	1	1	0	DATA BUS → CTL REG.1
0	1	0	1	1	1	DATA BUS → CTL REG.2
1	X	X	X	X	X	DATA BUS ; HI-Z

0; LOW LEVEL
 1; HIGH LEVEL
 X; DON'T CARE
 HI-Z, HIGH IMPEDANCE

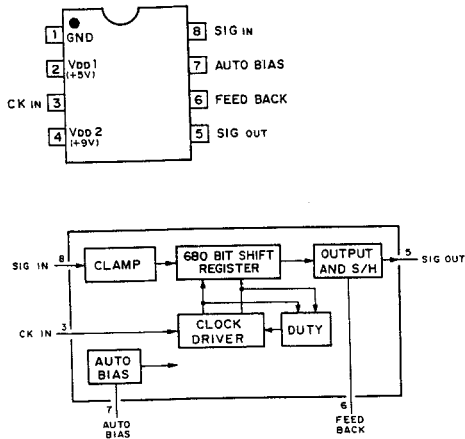
DO-D7; DATA BUS INPUTS/OUTPUTS
 CS; CHIP SELECT INPUT
 RD; READ STROBE INPUT
 WR; WRITE STROBE INPUT
 A0-A2; ADDRESS INPUT
 RST; RESET INPUT
 CLR; CLEAR INPUT
 PA0-PA7; PORT A INPUTS/OUTPUTS
 PB0-PB7; PORT B INPUTS/OUTPUTS
 PC0-PC7; PORT C INPUTS/OUTPUTS
 PD0-PD7; PORT D INPUTS/OUTPUTS
 PX0-PX3; PORT X INPUTS/OUTPUTS



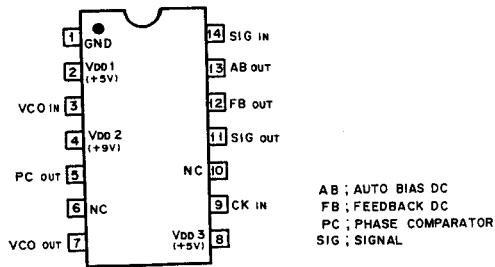
CXA1020P (SONY)
CHROMA CROSS-COLOR NOISE REDUCER/EDGE COMPENSATOR
— TOP VIEW —



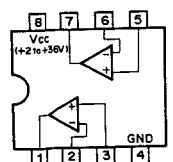
CXL5001P (SONY)
C-MOS CCD FOR NTSC 1 H DELAY LINE
— TOP VIEW —



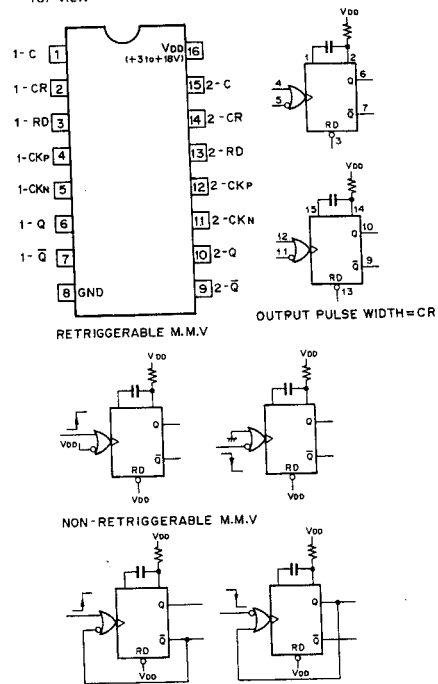
CXL5005P (SONY)
C-MOS CCD 1H DELAY LINE FOR NTSC
— TOP VIEW —



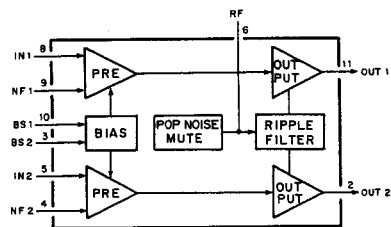
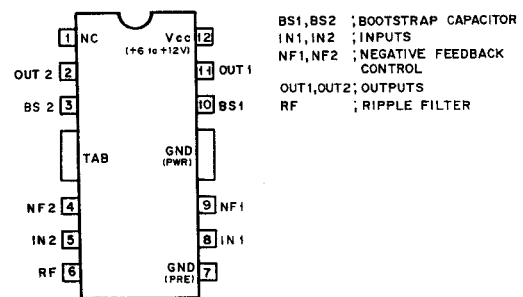
LM2903DO (RAYTHEON)
VOLTAGE COMPARATOR
— TOP VIEW —



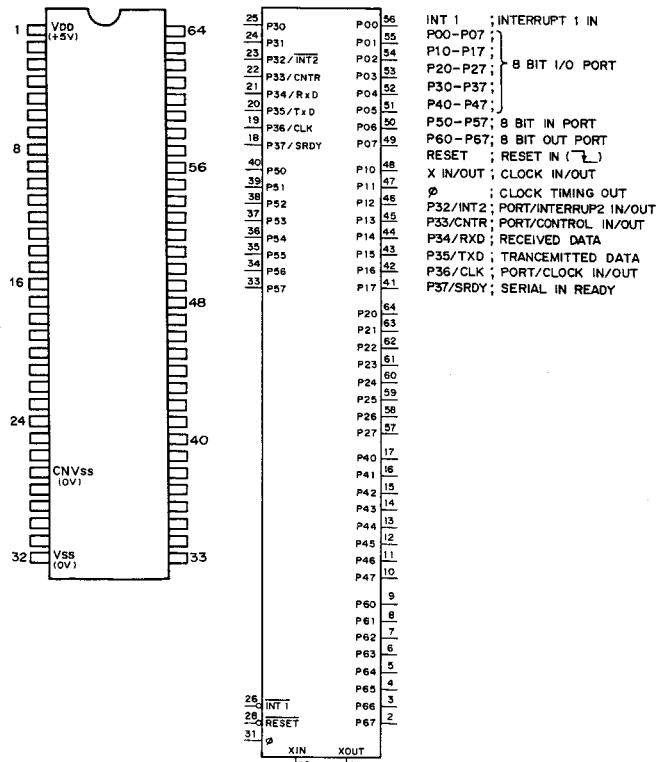
HD14538BP (HITACHI)
MC14538BCP (MOTOROLA)
TC4538BP
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE
MONOSTABLE MULTIVIBRATOR
— TOP VIEW —



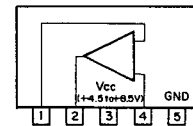
LA4550 (SANYO)
2CH AF POWER AMP
— TOP VIEW —



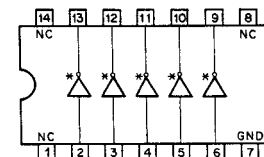
M50747H-XXXSP
C-MOS PROCESS 8-BIT ONE-CHIP MICROCOMPUTER
— TOP VIEW —



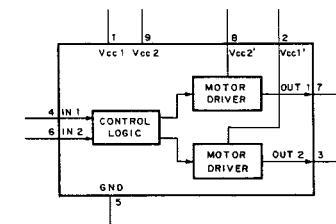
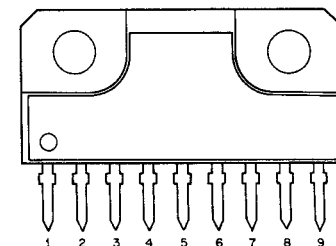
M5215L (MITSUBISHI)
FM IF AMPLIFIER
— REAR VIEW —



M54516P (MITSUBISHI)
INVERTER WITH OPEN-COLLECTOR
(DARLINGTON-CONNECTED TRANSISTOR ARRAY)
— TOP VIEW —

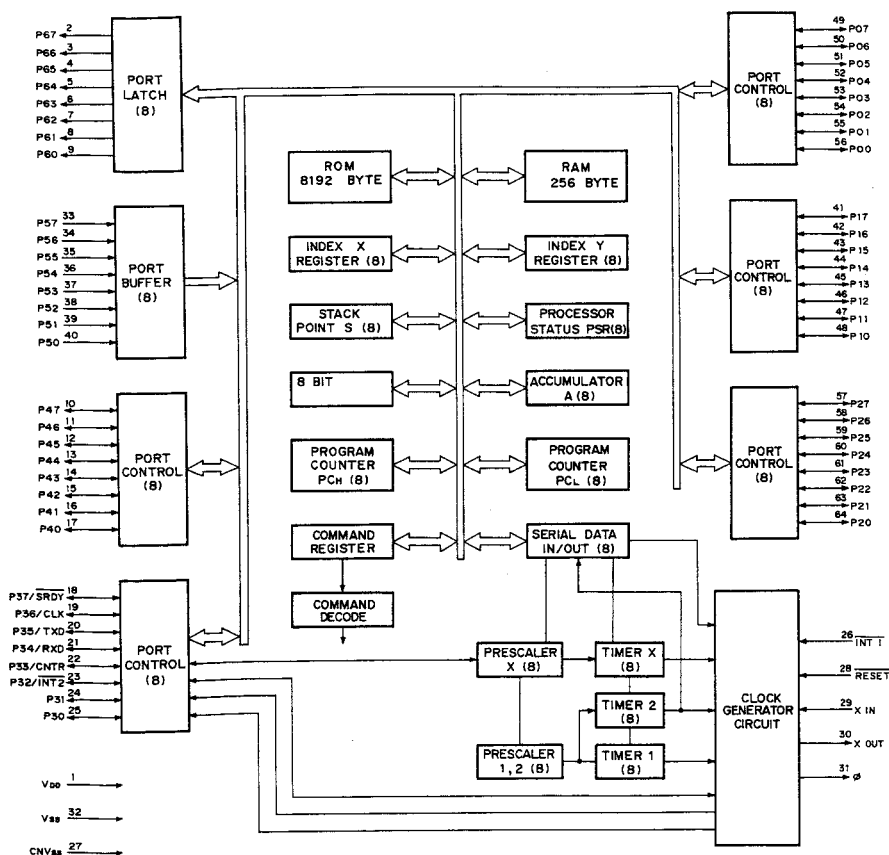


M54543L (MITSUBISHI)
BI-DIRECTIONAL MOTOR DRIVER
— SIDE VIEW —

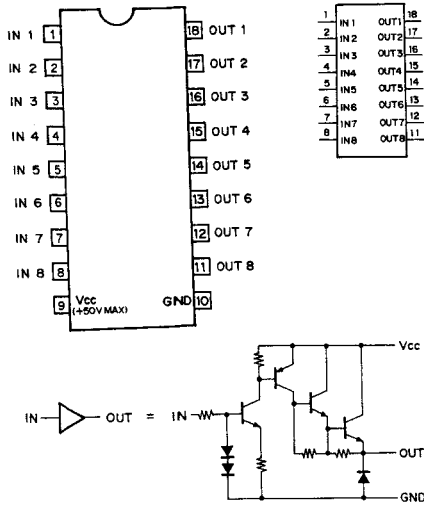


IN		OUT		MODE
1	2	1	2	
0	0	2	2	NO OPERATION
1	0	1	0	ROTATION
0	1	0	1	REVERSE ROTATION
1	1	0	0	BRAKE

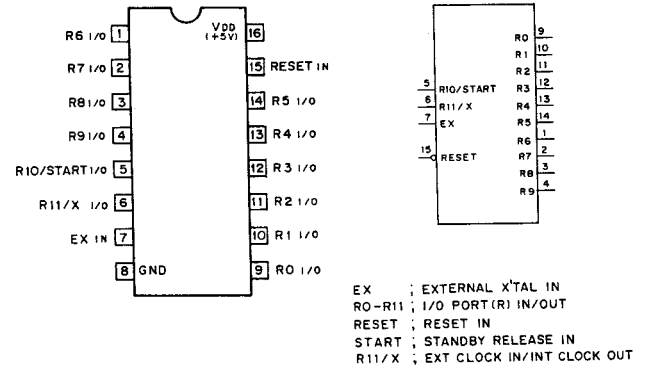
0: LOW LEVEL
1: HIGH LEVEL
2: HIGH IMPEDANCE



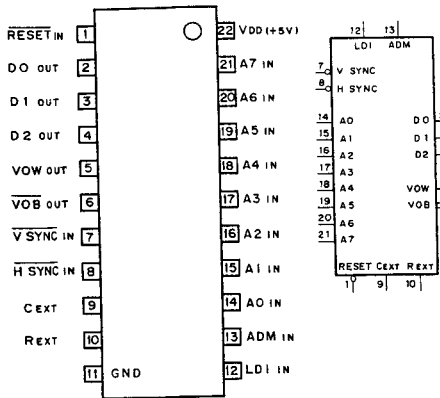
M54562P (MITSUBISHI)
SOURCE TYPE DARLINGTON TRANSISTOR ARRAY
— TOP VIEW —



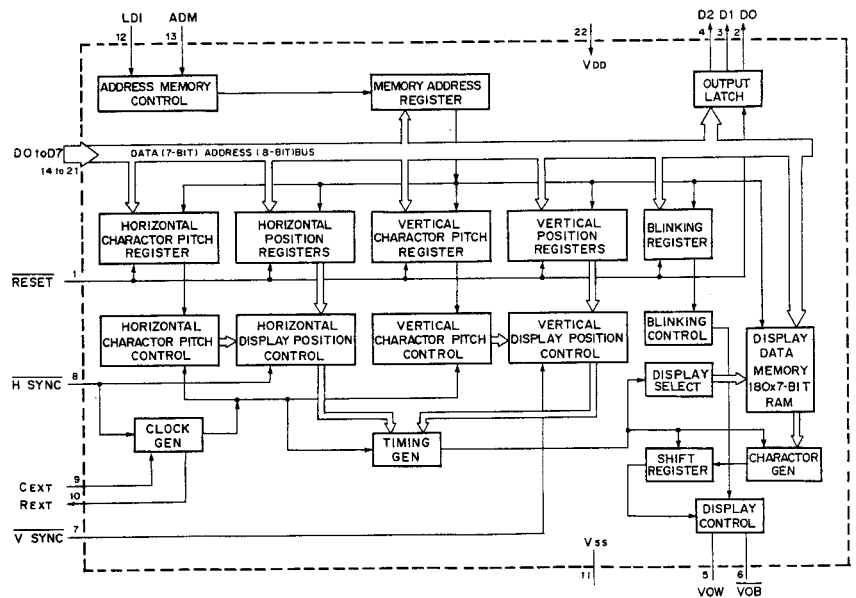
M88201H (FUJITSU)
C-MOS 4 BIT MICROCOMPUTER
— TOP VIEW —



MB88303 (FUJITSU)
N-MOS PROGRAMMABLE TV DISPLAY CONTROLLER
— TOP VIEW —

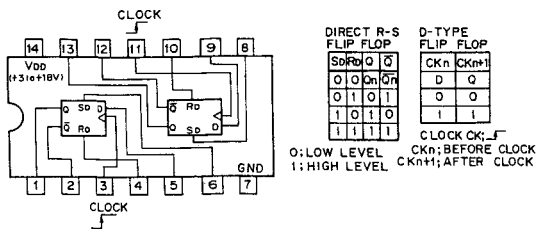


ADM : ADDRESS INCREMENT MODE
A0 to A7 : ADDRESS INPUT
DO to D2 : DATA OUTPUT
CEXT : EXT CAPACITOR FOR OSC
LD1 : LOAD DATA AND INSTRUCTION
VOB : VIDEO BLACK OUT
VOW : VIDEO WHITE OUT
REXT : EXT RESISTOR FOR OSC

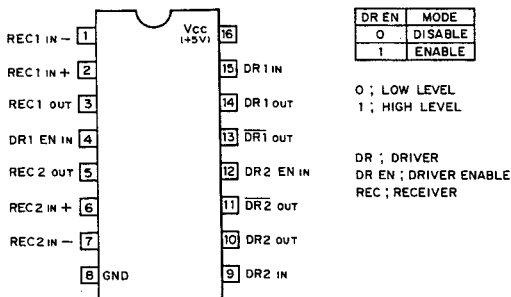


b3-b0	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
b5-b4	00	A	B	C	D	E	F	G	H	I	J	K	L	M	.	BLANK
01	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	:	■	(
10	0	1	2	3	4	5	6	7	8	9	?	!	'	.	BACK	)
11	↑	↓	←	→	+	-	*	/	=	&						

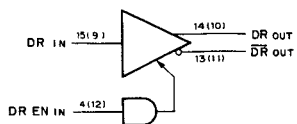
MC14013BCP (MOTOROLA)
C-MOS D-TYPE FLIP-FLOP WITH DIRECT SET/RESET
— TOP VIEW —



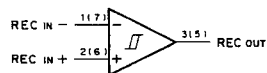
MC34051P (MOTOROLA)
RS-422 DRIVER/RECEIVER
— TOP VIEW —



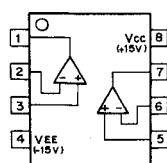
DRIVER CIRCUIT



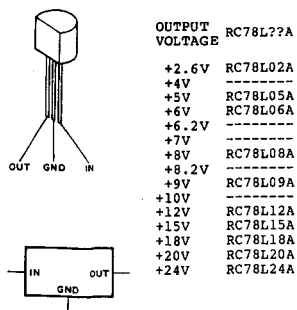
RECEIVER CIRCUIT



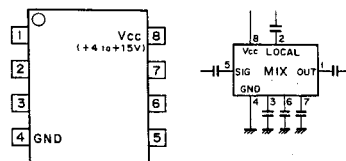
RC2043DD (RAYTHEON)
OPERATIONAL AMPLIFIER
— TOP VIEW —



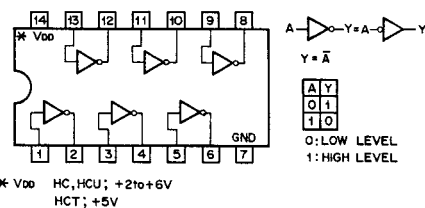
RC78L??A (RAYTHEON)
POSITIVE VOLTAGE REGULATOR (100mA)



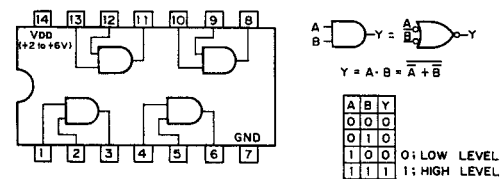
SN16913P (TI)
BALANCED MIXER
— TOP VIEW —



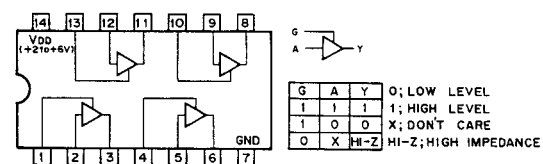
SN74HC04N (TI)
C-MOS INVERTER
— TOP VIEW —



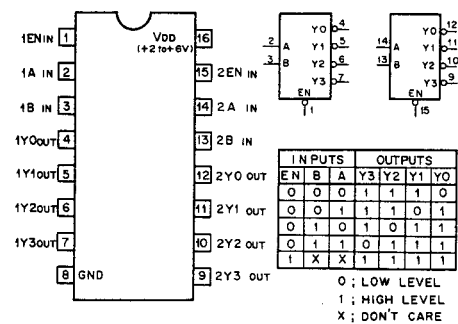
SN74HC08N (TI)
C-MOS 2-INPUT AND GATE
— TOP VIEW —



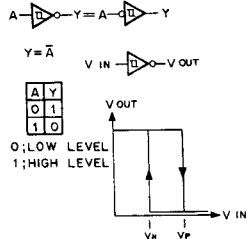
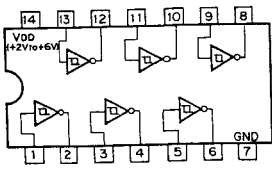
SN74HC126N (TI)
C-MOS BUS BUFFER GATE WITH 3-STATE OUTPUT
— TOP VIEW —



SN74HC139N (TI) ($V_{DD} = +2$ to $+6V$)
C-MOS 1-OF-4 DECODER/DEMULPLEXER
— TOP VIEW —

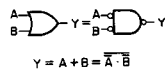
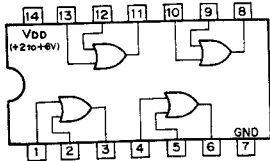


SN74HC14N (TI)
C-MOS SCHMITT TRIGGER INVERTER
— TOP VIEW —



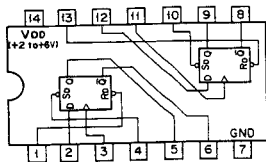
VDD	VH	VP
2.0V	0.75V	1.25V
4.5V	1.9V	2.7V
6.0V	2.6V	3.6V

SN74HC32N (TI)
C-MOS 2-INPUT OR GATE
— TOP VIEW —



0: LOW LEVEL
1: HIGH LEVEL

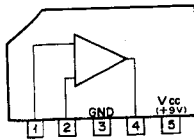
SN74HC74N (TI)
C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET
— TOP VIEW —



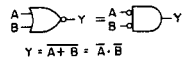
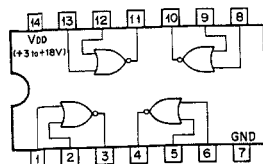
INPUTS	OUTPUTS
55 R	0 Qn+1
56 CK	1 Qn
1 D	0
2 X	1
3 X	0
4 X	1
5 X	0
6 X	1
7 F	1
8 F	0
9 F	1
10 F	0
11 X	Qn
12 X	Qn

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE
F: NONSTABLE

TA7080AP (TOSHIBA)
LINEAR AMP
— SIDE VIEW —

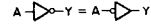
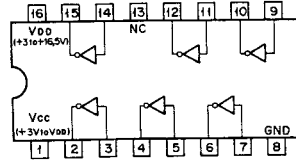


TC4001UBP (TOSHIBA)
C-MOS 2-INPUT NOR GATE
— TOP VIEW —



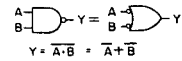
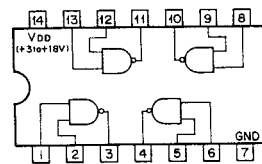
0: LOW LEVEL
1: HIGH LEVEL

TC4009UBP (TOSHIBA)
C-MOS INVERTING TYPE BUFFER/CONVERTER (TO TTL LEVEL)
— TOP VIEW —



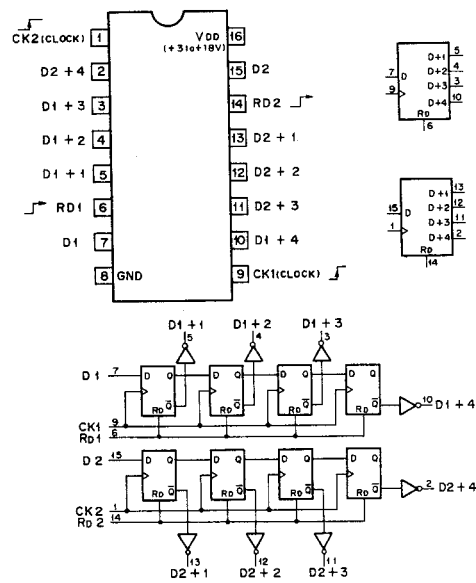
A	Y
0	1
1	0

TC4011BP (TOSHIBA)
C-MOS 2-INPUT NAND GATE
— TOP VIEW —

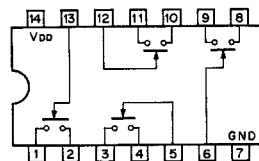


0: LOW LEVEL
1: HIGH LEVEL

TC4015BP (TOSHIBA)
C-MOS DUAL 4-STAGE STATIC SHIFT REGISTER WITH DIRECT RESET
— TOP VIEW —



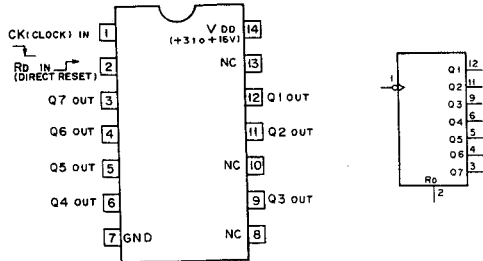
TC4016BPHB (TOSHIBA)
C-MOS BILATERAL SWITCH
— TOP VIEW —



CONT IN	SW
0	OFF
1	ON

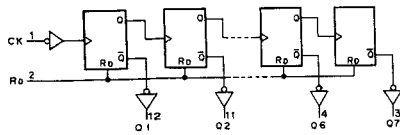
0: LOW LEVEL
1: HIGH LEVEL

TC4024BP (TOSHIBA)
C-MOS ASYNCHRONOUS 7-BIT BINARY COUNTER
— TOP VIEW —

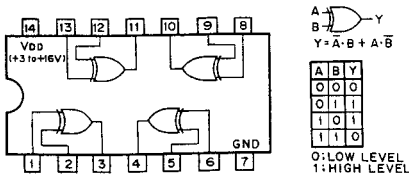


COUNT	INPUTS	OUTPUTS
	CK RD Q7 Q6 Q5 Q4 Q3 Q2 Q1	
0	X 1 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
1	1 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 1
2	1 0 0 0 0 0 0 0 0	0 0 0 0 0 0 1 0
3	1 0 0 0 0 0 0 0 0	0 0 0 0 0 1 0 0
4	1 0 0 0 0 0 0 0 0	0 0 0 0 1 0 0 0
125	1 0 1 1 1 1 1 1 0	0 1 1 1 1 1 0 1
126	1 0 1 1 1 1 1 1 0	0 1 1 1 1 1 1 0
127	1 0 1 1 1 1 1 1 1	0 1 1 1 1 1 1 1
—	0 0	NO CHANGE
—	1 0	

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE



TC4030BPHB (TOSHIBA)
C-MOS EXCLUSIVE OR GATE
— TOP VIEW —

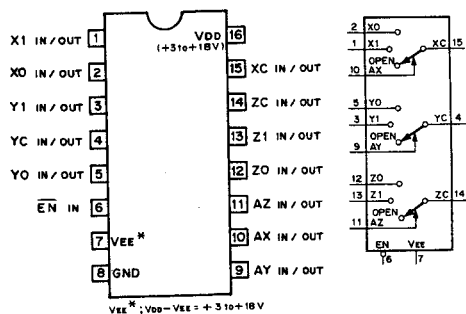


$$Y = A \oplus B = A \cdot \bar{B} + \bar{A} \cdot B$$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0: LOW LEVEL
1: HIGH LEVEL

TC4053BP (TOSHIBA)
TC4053BPHB (TOSHIBA)
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —

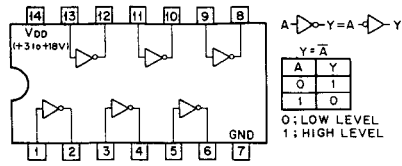


VEE*: VDD - VEE = +3 to +18V

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE.

CONT. INPUTS	ON CHANNEL
EN A (X,Y,Z)	
0	0
0	1
1	X

TC4069UBP (TOSHIBA)
C-MOS INVERTER
— TOP VIEW —

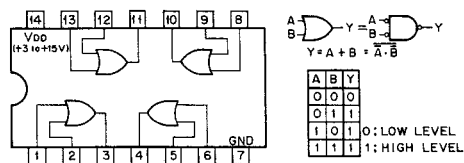


$$Y = \bar{A}$$

A	Y
0	1
1	0

0: LOW LEVEL
1: HIGH LEVEL

TC4071BP (TOSHIBA)
C-MOS 2-INPUT OR GATE
— TOP VIEW —

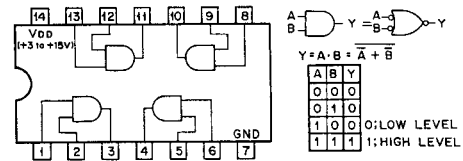


$$Y = A + B = \overline{A \cdot B}$$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0: LOW LEVEL
1: HIGH LEVEL

TC4081BP (TOSHIBA)
C-MOS 2-INPUT AND GATE
— TOP VIEW —

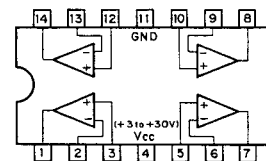


$$Y = A \cdot B = \overline{A + B}$$

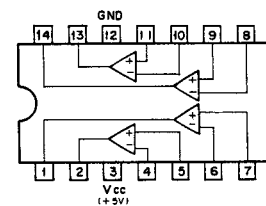
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0: LOW LEVEL
1: HIGH LEVEL

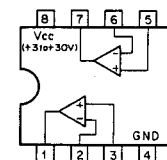
uPC324C (NEC)
QUAD. OP. AMPLIFIER
— TOP VIEW —



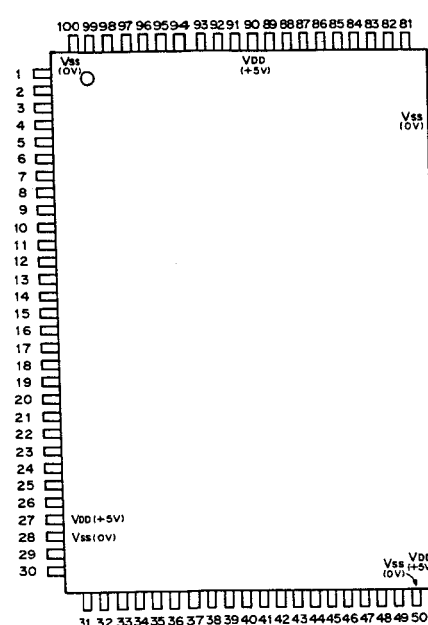
uPC339C (NEC)
COMPARATOR
— TOP VIEW —



uPC358C (NEC)
DUAL OPERATIONAL AMPLIFIERS
— TOP VIEW —

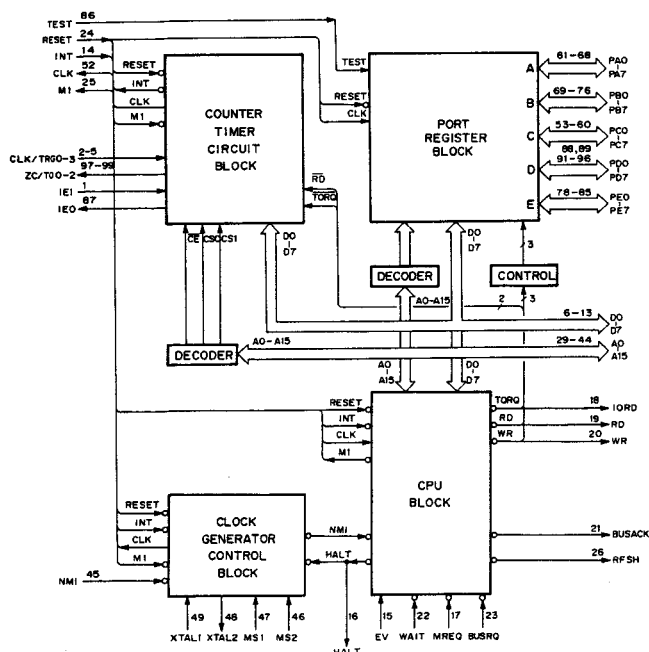


TMP284C011AF (TOSHIBA)
C-MOS 8 BIT MICROPROCESSOR
— TOP VIEW —



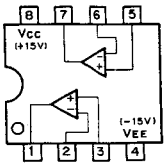
NO.	I	N	O	U	T	SYMBOL	NO.	I	N	O	U	T	SYMBOL
1						IE1	51						Vcc
2						CLK/TRG3	52						CLK
3						CLK/TRG2	53						PC7
4						CLK/TRG1	54						PC6
5						CLK/TRG0	55						PC5
6						D7	56						PC4
7						D6	57						PC3
8						D5	58						PC2
9						D4	59						PC1
10						D3	60						PC0
11						D2	61						PA7
12						D1	62						PA6
13						D0	63						PA5
14						INT	64						PA4
15						EV	65						PA3
16						HALT	66						PA2
17						MREQ	67						PA1
18						IORQ	68						PA0
19						RD	69						PB7
20						WR	70						PB6
21						BUSACK	71						PB5
22						WAIT	72						PB4
23						BUSREQ	73						PB3
24						RESET	74						PB2
25						MT	75						PB1
26						RFSH	76						PB0
27						Vcc	77						Vss
28						Vss	78						PE7
29						A0	79						PE6
30						A1	80						PE5
31						A2	81						PE4
32						A3	82						PE3
33						A4	83						PE2
34						A5	84						PE1
35						A6	85						PE0
36						A7	86						TEST
37						A8	87						IE0
38						A9	88						PD7
39						A10	89						PD6
40						A11	90						Vcc
41						A12	91						PD5
42						A13	92						PD4
43						A14	93						PD3
44						A15	94						PD2
45						NMI	95						PD1
46						MS2	96						PD0
47						MS1	97						ZC/T02
48						XTAL2	98						ZC/T01
49						XTAL1	99						ZC/T00
50						Vss	100						Vss

58	PA0	A0	29	A0-A15	3-STATE ADDRESS BUS OUTPUTS
57	PA1	A1	30	BUSACK	BUS ACKNOWLEDGE OUTPUT
56	PA2	A2	31	BUSREQ	BUS REQUEST INPUT
55	PA3	A3	32	CLK	CLOCK OUTPUT
54	PA4	A4	33	CLK/TRG0-3	EXTERNAL CLOCK / TIMER TRIGGER0-3 INPUTS
53	PA5	A5	34	D0-D7	3-STATE DATA BUS INPUTS/OUTPUTS
52	PA6	A6	35	EV	EVALUATOR INPUT
51	PA7	A7	36	HALT	HALT OUTPUT
50	PA0	A8	37	IE1/IE0	CTC INTERRUPT ENABLE INPUT/OUTPUT
49	PA1	A9	38	INT	MASKABLE INTERRUPT REQUEST INPUT
48	PA2	A10	39	IORQ	3-STATE I/O REQUEST OUTPUT
47	PA3	A11	40	M1	3-STATE MACHINE CYCLE 1 OUTPUT
46	PA4	A12	41	MREQ	3-STATE REQUEST OUTPUT
45	PA5	A13	42	MS1/MS2	MODE SELECT 1/2 INPUTS
44	PA6	A14	43	NMI	NON-MASKABLE INTERRUPT REQUEST INPUT
43	PA7	A15	44	PA0-PA7	
42	PB0-PB7		45	PB0-PB7	3-STATE I/O PORT
41	PC0-PC7		46	PC0-PC7	
40	PC0-PC7		47	PC0-PC7	
39	PC0-PC7		48	PC0-PC7	
38	PC0-PC7		49	PC0-PC7	
37	PC0-PC7		50	PC0-PC7	
36	PC0-PC7		51	PC0-PC7	
35	PC0-PC7		52	PC0-PC7	
34	PC0-PC7		53	PC0-PC7	
33	PC0-PC7		54	PC0-PC7	
32	PC0-PC7		55	PC0-PC7	
31	PC0-PC7		56	PC0-PC7	
30	PC0-PC7		57	PC0-PC7	
29	PC0-PC7		58	PC0-PC7	
28	PC0-PC7		59	PC0-PC7	
27	PC0-PC7		60	PC0-PC7	
26	PC0-PC7		61	PC0-PC7	
25	PC0-PC7		62	PC0-PC7	
24	PC0-PC7		63	PC0-PC7	
23	PC0-PC7		64	PC0-PC7	
22	PC0-PC7		65	PC0-PC7	
21	PC0-PC7		66	PC0-PC7	
20	PC0-PC7		67	PC0-PC7	
19	PC0-PC7		68	PC0-PC7	
18	PC0-PC7		69	PC0-PC7	
17	PC0-PC7		70	PC0-PC7	
16	PC0-PC7		71	PC0-PC7	
15	PC0-PC7		72	PC0-PC7	
14	PC0-PC7		73	PC0-PC7	
13	PC0-PC7		74	PC0-PC7	
12	PC0-PC7		75	PC0-PC7	
11	PC0-PC7		76	PC0-PC7	
10	PC0-PC7		77	PC0-PC7	
9	PC0-PC7		78	PC0-PC7	
8	PC0-PC7		79	PC0-PC7	
7	PC0-PC7		80	PC0-PC7	
6	PC0-PC7		81	PC0-PC7	
5	PC0-PC7		82	PC0-PC7	
4	PC0-PC7		83	PC0-PC7	
3	PC0-PC7		84	PC0-PC7	
2	PC0-PC7		85	PC0-PC7	
1	PC0-PC7		86	PC0-PC7	
0	PC0-PC7		87	PC0-PC7	
	PC0-PC7		88	PC0-PC7	
	PC0-PC7		89	PC0-PC7	
	PC0-PC7		90	PC0-PC7	
	PC0-PC7		91	PC0-PC7	
	PC0-PC7		92	PC0-PC7	
	PC0-PC7		93	PC0-PC7	
	PC0-PC7		94	PC0-PC7	
	PC0-PC7		95	PC0-PC7	
	PC0-PC7		96	PC0-PC7	
	PC0-PC7		97	PC0-PC7	
	PC0-PC7		98	PC0-PC7	
	PC0-PC7		99	PC0-PC7	
	PC0-PC7		100	PC0-PC7	

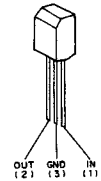


IC, TRANSISTOR

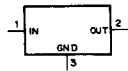
μPC4558C (NEC)
OPERATIONAL AMPLIFIER
- TOP VIEW -



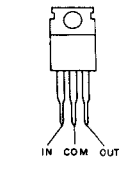
μPC78L??A (NEC)
POSITIVE VOLTAGE REGULATOR (100mA)



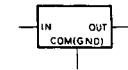
OUTPUT VOLTAGE	μPC78L??	μPC78L??A
5V	μPC78L05	μPC78L05A
6V	μPC78L06	
8V	μPC78L08	
9V	μPC78L09	
12V	μPC78L12	
15V	μPC78L15	



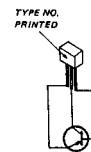
μPC78M??H (NEC)
POSITIVE VOLTAGE REGULATOR (0.5A)
- SIDE VIEW -



OUTPUT VOLTAGE	μPC78M??H
+5V	μPC78M05H
+6V	-----
+7V	-----
+8V	μPC78M08H
+12V	μPC78M12H
+15V	μPC78M15H
+18V	-----
+20V	-----
+24V	μPC78M24H

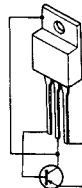


2SA1115

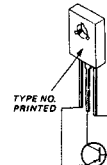


TYPE NO.
PRINTED

2SA1175
2SA1175F



2SA768
2SA771



TYPE NO.
PRINTED

2SB649A



2SB733



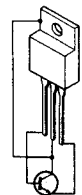
2SB822



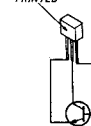
2SC1740S
2SC403SP



2SC1815
2SC2878



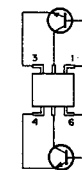
2SC1826



TYPE NO.
PRINTED

2SC2785
2SC2785F
2SC2785K

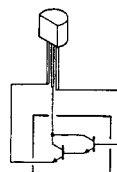
- TOP VIEW -



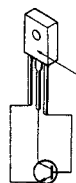
2SC3064



2SD1055

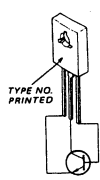


2SD1111

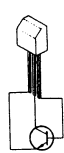


2SD1682

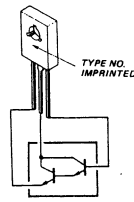
TYPE NO.
PRINTED



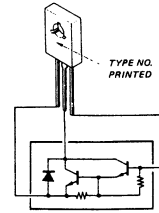
2SD669A



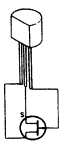
2SD773
2SD774



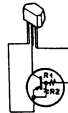
2SD894



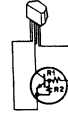
2SD998



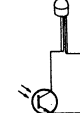
2SK523



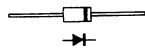
DTA124XS (R1=22K, R2=47K)
DTA143XS (R1=4.7K, R2=10K)
DTA144ES (R1=47K, R2=47K)



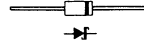
DTC124ES (R1=22K, R2=22K)
DTC124XS (R1=22K, R2=47K)
DTC143TS (R1=4.7K, R2= OPEN)
DTC144ES (R1=47K, R2=47K)



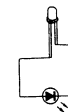
SPS102



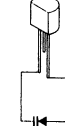
10E-2
1S1555S
1SS119
1SS133



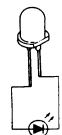
1SS97
1SS97-1
1SS99



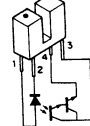
BR5104S ; RED



FC54M

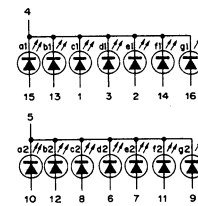
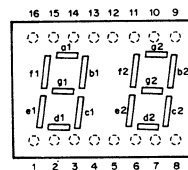


GL-5HD5 ; RED

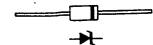


GP-1L52
GP-1L53

DUAL 7-SEGMENT LED
— TOP VIEW —



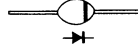
LB402VK (ROHM)



RD ? 7EB ?
RD ? 7ESB ?



TLUG154 ; GREEN



U05E

SECTION 15 PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

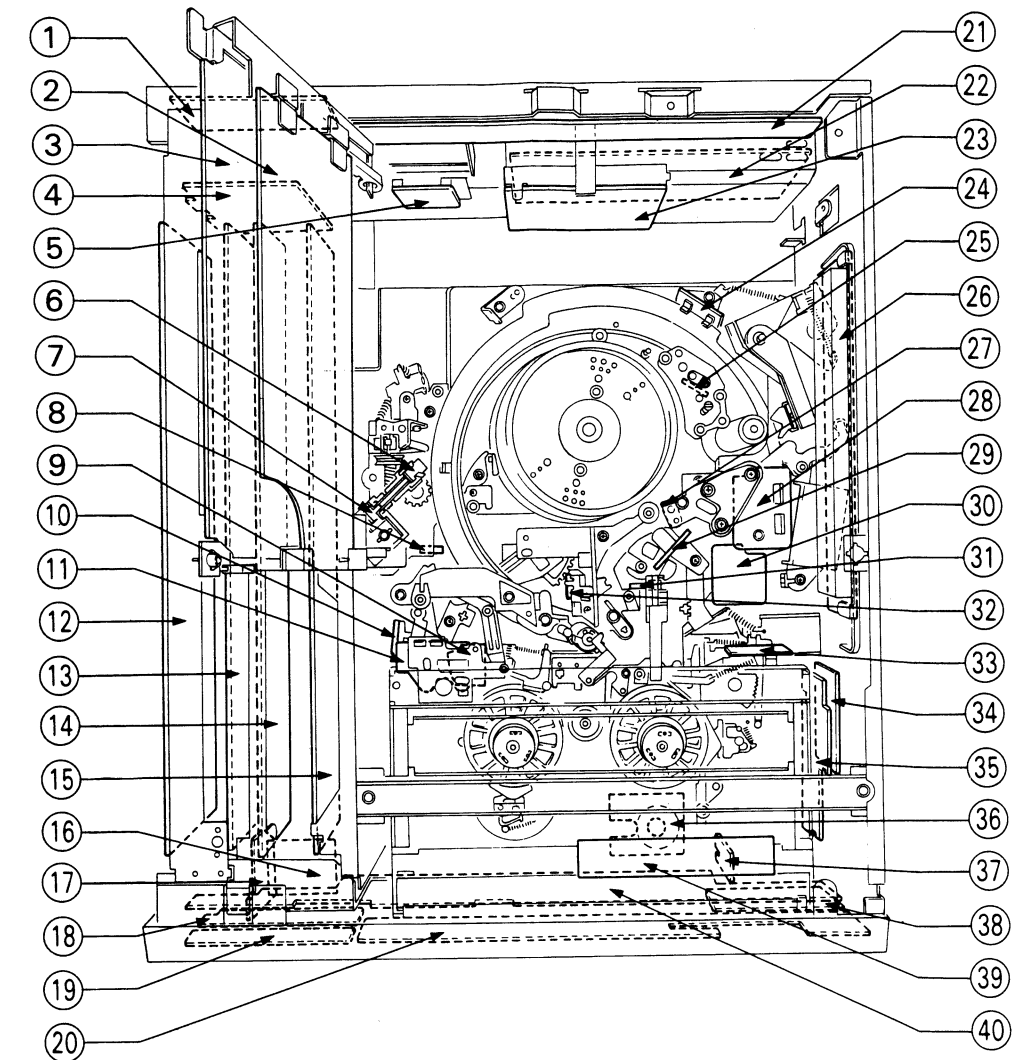
CIRCUIT FUNCTION OF THE PRINTED CIRCUIT BOARD

Circuit information is provided below.

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	CP-136	Monitor Out
	DM-72	Y Demodulator, SP Detector, Character Mixer
	DM-73	C PB Processor
	DUS-271	Connector
	MD-60	Y/C Separator, Y Modulator, C REC Processor, Meter Driver
	RP-40B	REC/PB Amplifier, Rotary Erase Driver
	VR-80	Level AUTO/MAN
AUDIO	AA-16	Connector
	AU-124	REC/PB Amplifier, Erase/Bias Oscillator
	CP-136	Monitor Out
	DUS-92	Audio R/P Head, Audio Erase Head
	DUS-147	Junction Board for Audio Head
	HN-130	Erase Head
	HP-42	Headphones
	MC-28	MIC IN
	NR-31	Dolby NR, NR Pilot REC/Detector,
	SW-315B	Select Switch
	VR-80	REC Level, Limiter ON/OFF
SERVO	EC-32	FR CTL Head
	PT-9	Reel Motor Driver
	SV-112B	Drum/Capstan Servo
	SY-141B	Reel Servo
	VR-80	Tracking Control
TIME CODE	CP-136	EXT. IN/OUT
	HN-84	Time Code Head
	HN-130	Junction Board for Time Code Head
	NR-31	REC/PB Amplifier
POWER	AC-98	Line Filter
	DC-31P	DC Supply
	UR-02	Switching Regulator

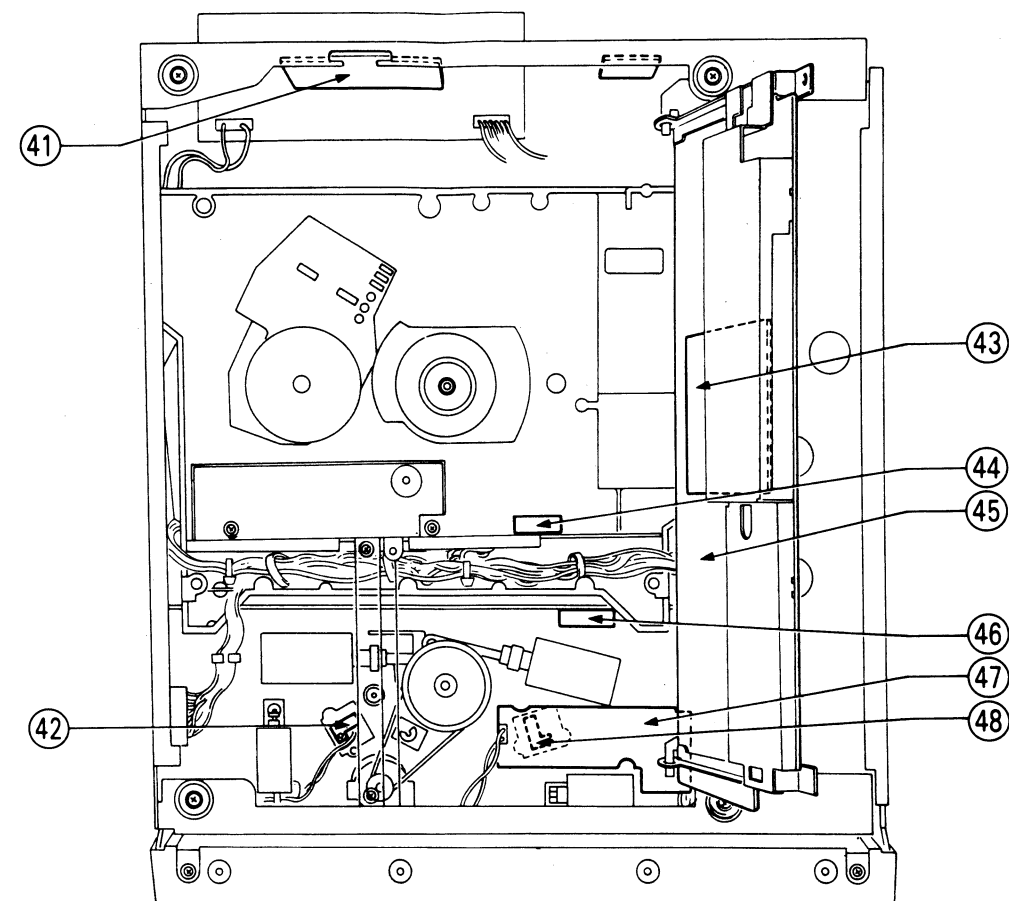
SYSTEM	BOARD	CIRCUIT FUNCTION
SYSTEM CONTROL	KY-159	Function Key Board
	DP-62	Display
	BC-16A	Video/Audio Timing Control
	CC-36	Junction Board for CC-37 and LP-41
	CC-37	Cassette In Detector
	LM-13	Threading Motor
	PD-40	Plunger Solenoids
	PD-41	Plunger Solenoids
	PH-5	Tape Beginning/End Detector
	PTC-30	SP/Miss REC Detector
	PTC-32	Search Dial
	PTC-33	Unthread-end Detector
	PTC-34	FR-STOP Detector
	PTC-35	S/T Reel Rotation Detector
	RM-66	Remote Connector
	SE-46	Tension Regulator Detector
OTHERS	SY-141B	System Control
	TG-22	Tension Regulator LED
	LP-41	Cassette Compartment Lamp
	MT-53	Meter Lamp
	RM-39	Reel Motor

[TOP VIEW]



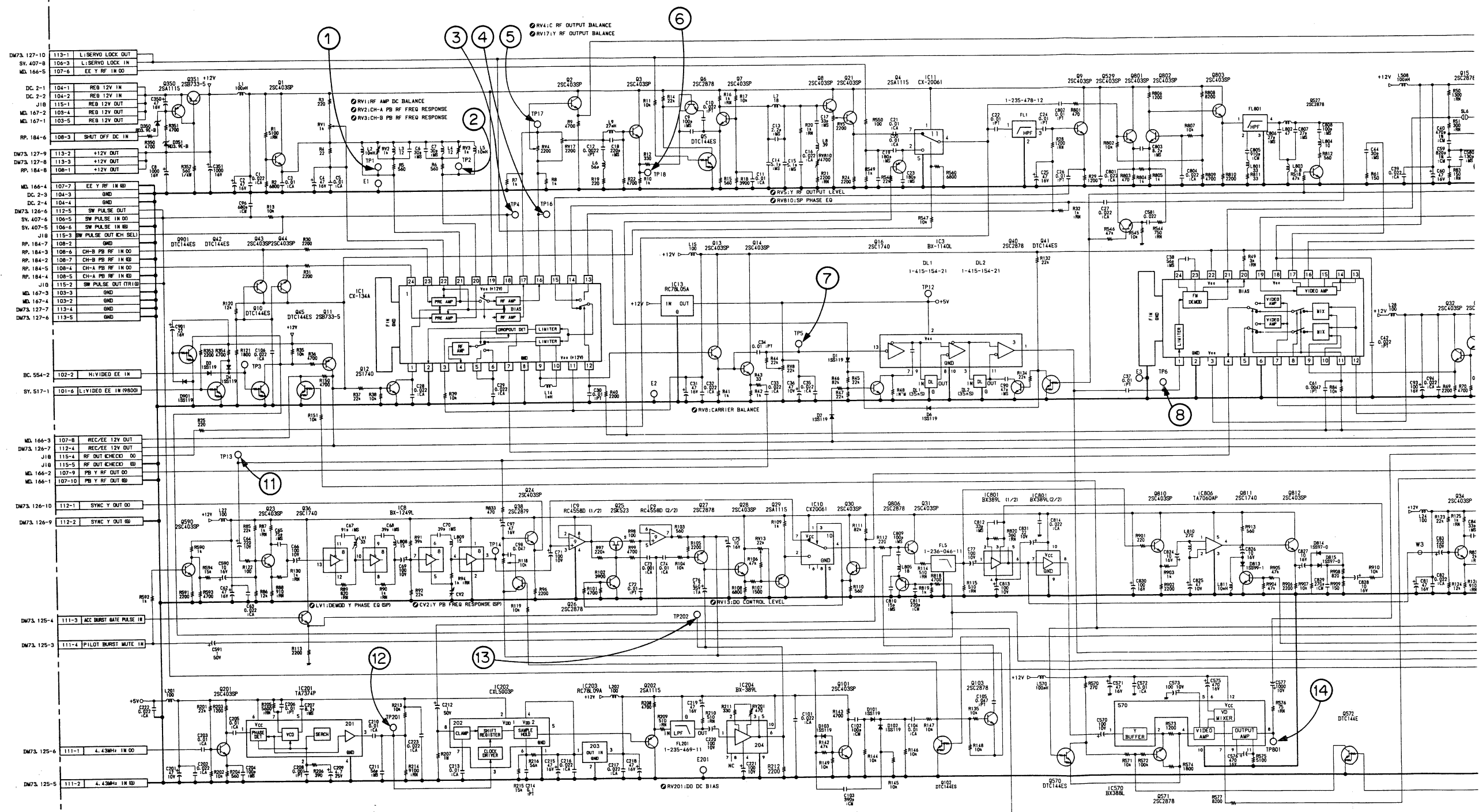
1 CP-136 Board	14 SV-112B Board	27 HN-84 Board
2 DM-73 Board	15 MD-60 Board	28 DUS-147 Board
3 DM-72 Board	16 MC-28 Board	29 EC-32 Board
4 AA-16 Board	17 HP-42 Board	30 HN-130 Board
5 RM-66 Board	18 VR-80 Board	31 PH-5 Board
6 PH-5 Board	19 MT-53 Board	32 PH-5 Board
7 PH-5 Board	20 SW-315B Board	33 CC-37 Board
8 LM-13 Board	21 DUS-271 Board	34 PD-40 Board
9 SE-46 Board	22 Switching Regulator (UR-02)	35 CC-36 Board
10 PTC-34 Board	23 DC-31P Board	36 RM-39 Board
11 PTC-30 Board	24 PTC-33 Board	37 PTC-32 Board
12 AU-124 Board	25 DUS-92 Board	38 DP-62 Board
13 NR-31 Board	26 RP-40B Board	39 LP-41 Board
		40 KY-159 Board

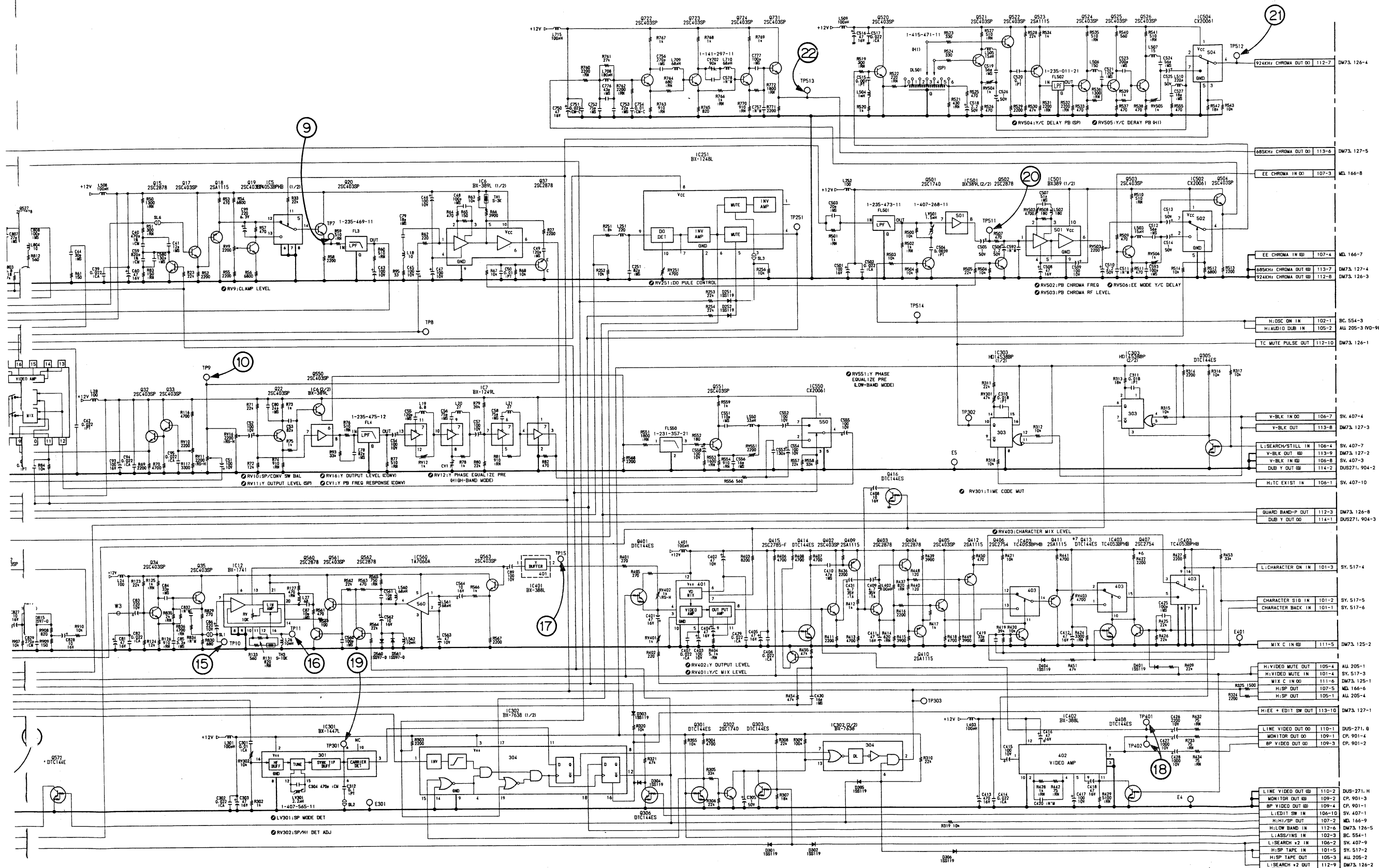
[BOTTOM VIEW]



- 41 AC-98 Board
- 42 PTC-35 Board
- 43 BC-16A Board
- 44 PT-9 Board
- 45 SY-141B Board
- 46 TG-22 Board
- 47 PD-41 Board
- 48 PTC-35 Board

DM-72: Y DEMODULATOR, SP DETECT, CHARACTER MIX



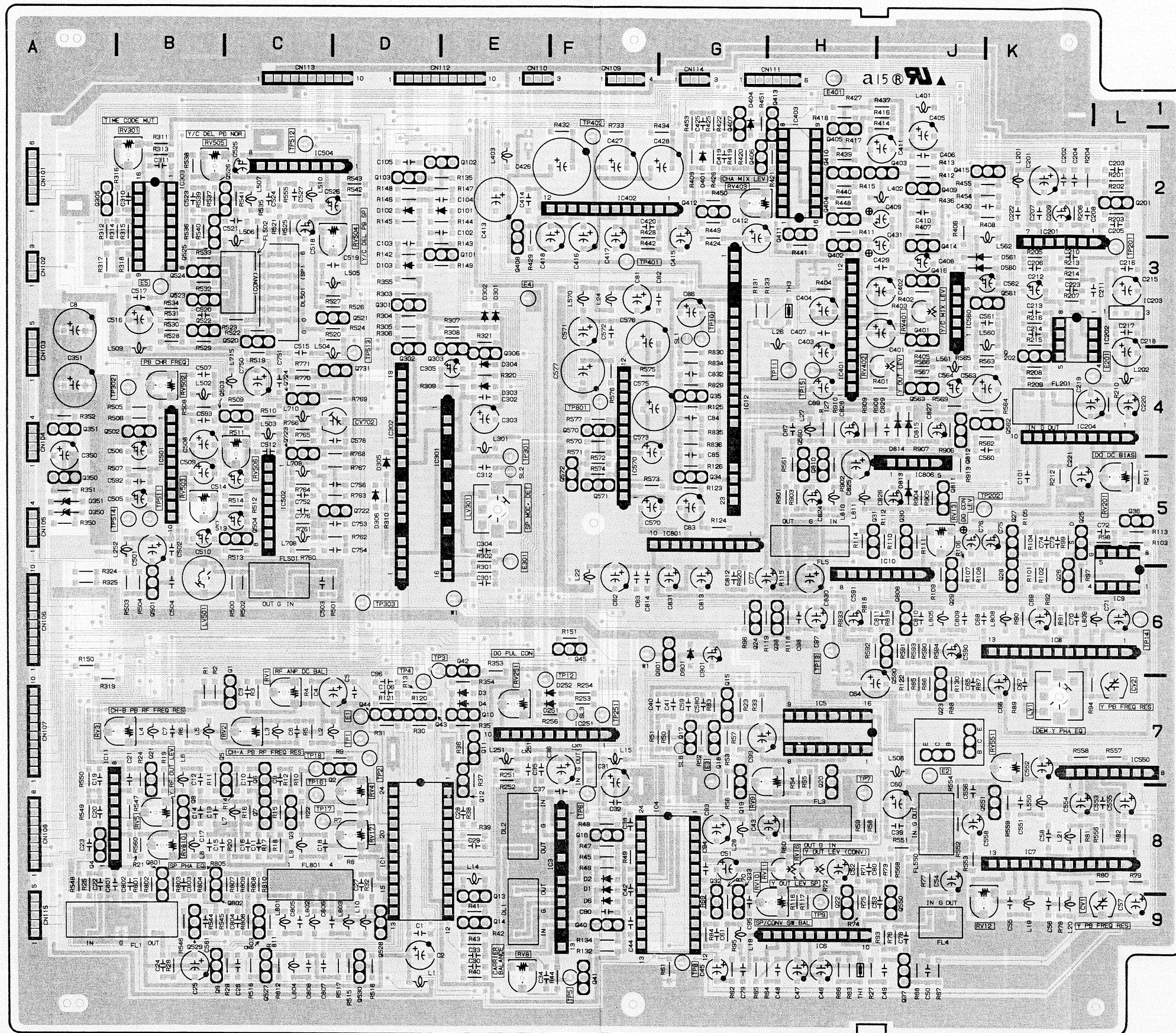


DM-72

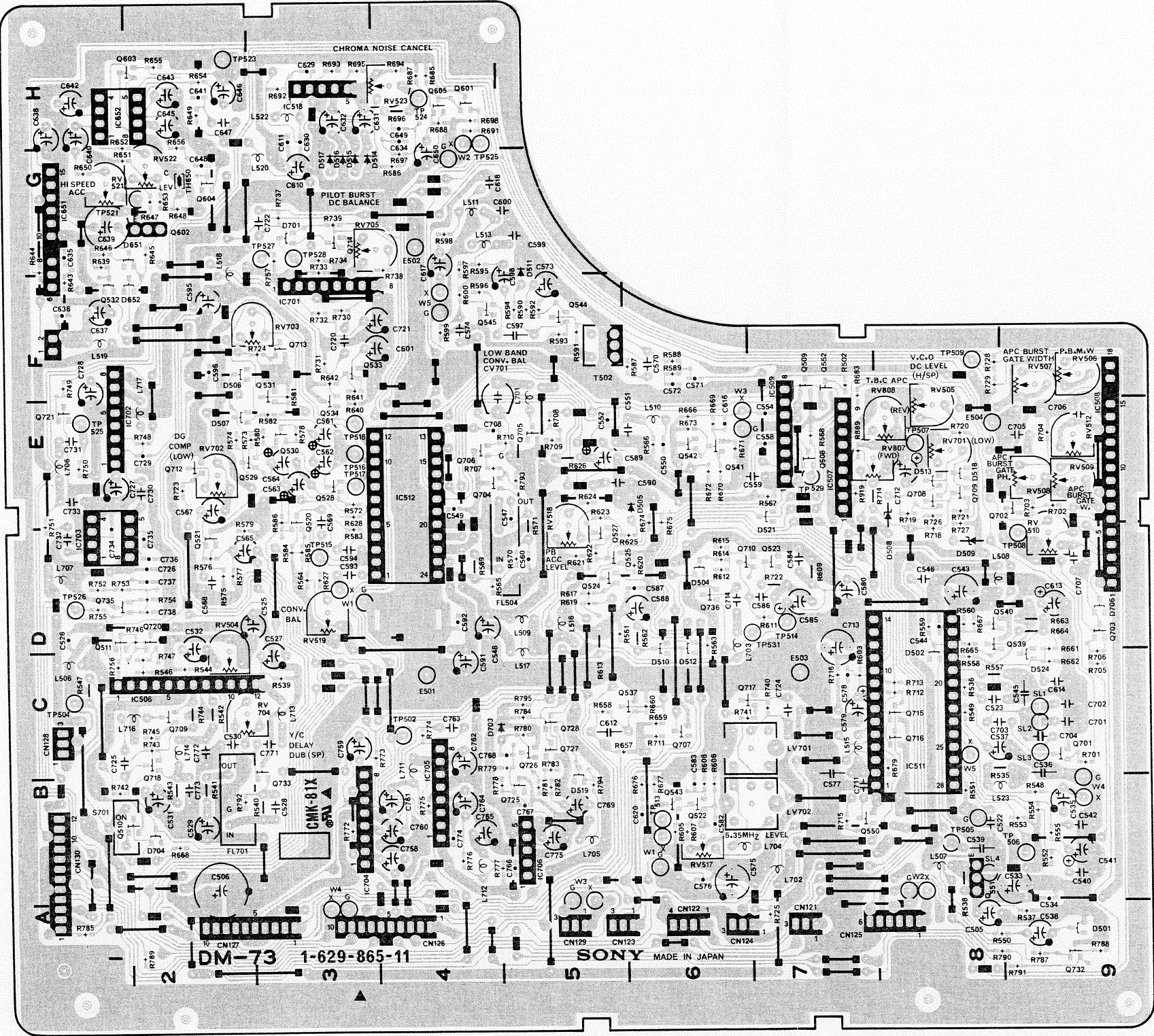
1-629-864-11
VO-9850P
VO-9800P

DM-72

—SOLDERING SIDE—
1-629-864-11
VO-9850P
VO-9800P



DM-73: C PB PROCESSOR



DM-73

— SOLDERING SIDE —
1-629-865-11
VO-9850P
VO-9800P

DM-73 (1-629-865-11) C

CN121	A-7	RV523	H-4
CN122	A-6	RV701	E-8
CN123	A-5	RV702	E-2
CN124	A-6	RV703	F-3
CN125	A-8	RV704	C-2
CN126	A-4	RV705	G-3
CN127	A-2	RV807	E-7
CN128	C-1	RV808	E-8
CN129	A-5		
CN130	B-1	S701	B-1
CV701	F-4	T502	F-5
D505	E-6	TP502	C-4
D508	E-8	TP504	C-1
D509	D-8	TP505	B-8
D511	G-5	TP506	B-9
D514	G-3	TP507	E-8
D515	G-3	TP508	E-9
D516	G-3	TP509	F-8
D517	G-3	TP513	B-6
D703	C-4	TP514	D-7
E501	C-4	TP515	D-3
E502	G-4	TP516	E-3
E503	C-7	TP517	E-3
E504	E-8	TP518	E-3
FL504	E-4	TP521	G-2
FL701	B-2	TP523	H-2
IC506	C-2	TP524	H-4
IC507	E-7	TP525	G-4
IC508	E-9	TP526	D-1
IC509	E-7	TP527	G-3
IC511	C-8	TP528	G-3
IC512	D-4	TP529	E-7
IC518	H-3	TP530	E-1
IC651	G-1	TP531	D-7
IC652	H-1		
IC701	F-3		
IC702	E-1		
IC703	D-1		
IC704	B-3		
IC705	B-4		
IC706	B-5		
LV701	C-6		
LV702	B-6		
RV504	D-2		
RV505	F-8		
RV506	F-9		
RV507	F-9		
RV508	E-9		
RV509	E-9		
RV510	D-9		
RV512	E-9		
RV517	B-6		
RV518	D-5		
RV519	D-3		
RV521	G-1		
RV522	H-2		

DM-73 (1-629-865-11) D

D501	A-8		
D502	C-8		
D504	D-6		
D506	F-2		
D507	E-2		
D510	C-6		
D512	C-6		
D513	E-8		
D518	E-8		
D519	B-8		
D521	E-7		
D524	C-8		
D651	G-1		
D652	F-2		
D701	G-1		
D704	B-2		
D706	D-8		
Q508	E-7		
Q509	F-7		
Q510	B-1		
Q511	D-1		
Q520	E-8		
Q521	D-1		
Q522	B-6		
Q523	D-1		
Q524	D-1		
Q525	D-1		
Q527	D-1		
Q528	E-1		
Q529	E-1		
Q530	E-1		
Q531	F-1		
Q532	F-1		
Q533	F-1		
Q534	E-1		
Q537	C-1		
Q539	D-1		
Q540	D-1		
Q541	E-1		
Q542	E-1		
Q543	B-1		
Q544	F-1		
Q545	F-1		
Q550	B-1		
Q601	H-1		
Q602	G-1		
Q603	H-1		
Q604	G-1		
Q605	H-1		
Q606	G-1		
Q607	C-1		
Q608	E-1		
Q609	E-1		
Q610	E-1		
Q611	E-1		
Q612	E-1		
Q613	E-1		
Q614	E-1		
Q615	E-1		
Q616	E-1		
Q617	E-1		
Q618	E-1		
Q619	E-1		
Q620	E-1		
Q621	E-1		
Q622	E-1		
Q623	E-1		
Q624	E-1		
Q625	E-1		
Q626	E-1		
Q627	E-1		
Q628	E-1		
Q629	E-1		
Q630	E-1		
Q631	E-1		
Q632	E-1		
Q633	E-1		
Q634	E-1		
Q635	E-1		
Q636	E-1		
Q637	E-1		
Q638	E-1		
Q639	E-1		
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Q641	E-1		
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Q669	E-1		
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Q671	E-1		
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Q673	E-1		
Q674	E-1		
Q675	E-1		
Q676	E-1		
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Q680	E-1		
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Q682	E-1		
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Q692	E-1		
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Q697	E-1		
Q698	E-1		
Q699	E-1		
Q700	E-1		
Q701	E-1		
Q702	E-1		
Q703	E-1		
Q704	E-1		
Q705	E-1		
Q706	E-1		
Q707	E-1		
Q708	E-1		
Q709	E-1		
Q710	D-1		
Q712	E-1		
Q713	F-1		
Q714	G-1		
Q715	H-1		
Q716	I-1		
Q717	J-1		
Q718	K-1		
Q719	L-1		
Q720	M-1		
Q721	N-1		
Q722	O-1		
Q723	P-1		
Q724	Q-1		
Q725	R-1		
Q726	S-1		
Q727	T-1		
Q728	U-1		
Q729	V-1		
Q730	W-1		
Q731	X-1		
Q732	Y-1		
Q733	Z-1		

DM-73 (1-629-865-11) C

CN121	A-7	RV523	H-4
CN122	A-6	RV701	E-8
CN123	A-5	RV702	E-2
CN124	A-6	RV703	F-3
CN125	A-8	RV704	C-2
CN126	A-4	RV705	G-3
CN127	A-2	RV807	E-7
CN128	C-1	RV808	E-8
CN129	A-5		
CN130	B-1	S701	B-1

CV701	F-4	T502	F-5
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D505	E-6	TP502	C-4
D508	E-8	TP504	C-1
D509	D-8	TP505	B-8
D511	G-5	TP506	B-9
D514	G-3	TP507	E-8
D515	G-3	TP508	E-9
D516	G-3	TP509	F-8
D517	G-3	TP513	B-6
D703	C-4	TP514	D-7

E501	C-4	TP515	D-3
E502	G-4	TP516	E-3
E503	C-7	TP517	E-3
E504	E-8	TP518	E-3
		TP521	G-2

FL504	E-4	TP524	H-4
FL701	B-2	TP525	G-4

IC506	C-2	TP526	D-1
IC507	E-7	TP527	G-3
IC508	E-9	TP528	G-3
IC509	E-7	TP529	E-7
IC511	C-8	TP530	E-1
IC512	D-4	TP531	D-7

IC518	H-3		
IC651	G-1		
IC652	H-1		
IC701	F-3		
IC702	E-1		
IC703	D-1		
IC704	B-3		
IC705	B-4		
IC706	B-5		

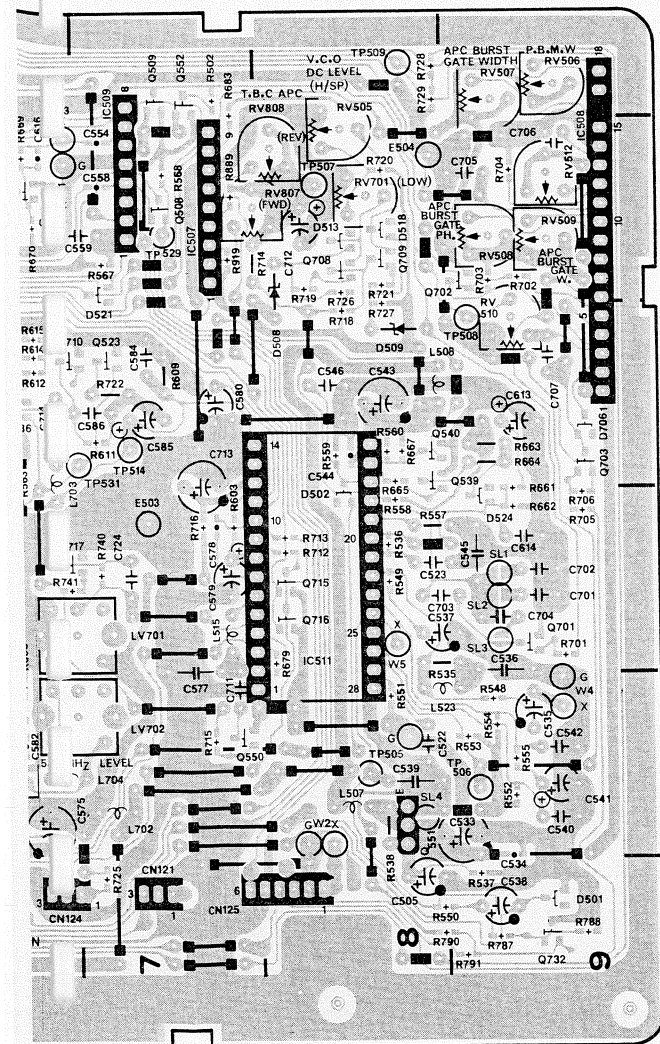
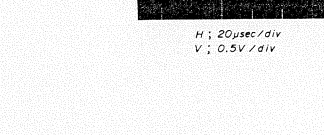
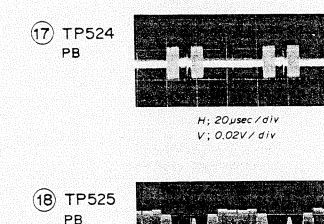
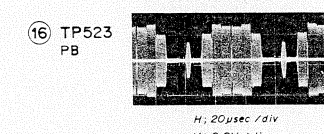
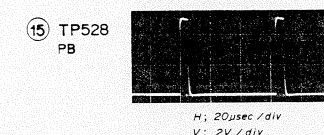
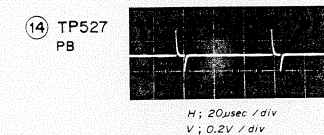
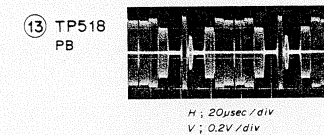
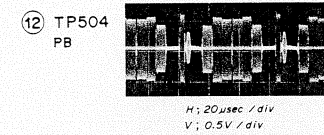
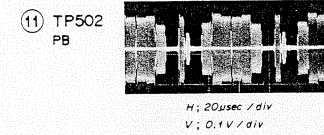
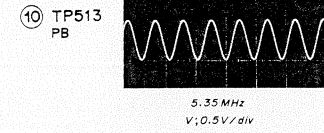
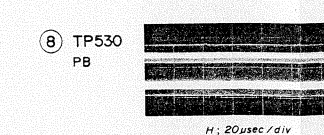
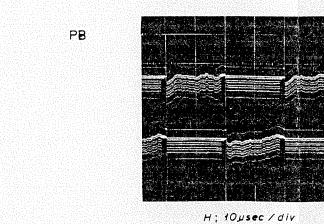
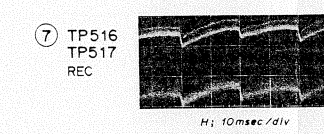
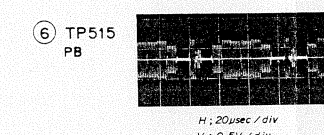
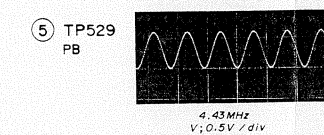
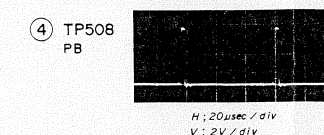
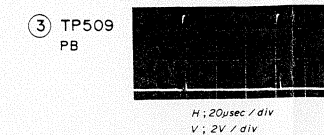
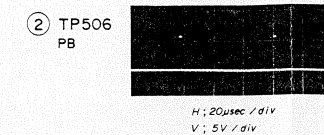
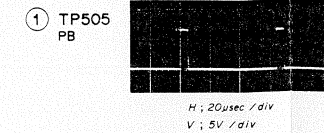
LV701	C-6		
LV702	B-6		

RV504	D-2		
RV505	F-8		
RV506	F-9		
RV507	F-9		
RV508	E-9		
RV509	E-9		
RV510	D-9		
RV512	E-9		
RV517	B-6		
RV518	D-5		
RV519	D-3		
RV521	G-1		
RV522	H-2		

DM-73 (1-629-865-11) S

D501	A-9	Q715	C-8
D502	C-8	Q716	C-8
D504	D-6	Q717	C-6
D506	F-2	Q718	C-2
D507	E-2	Q719	C-2
D510	C-6	Q720	D-2
D512	C-6	Q721	E-1
D513	E-8	Q725	B-5
D518	E-8	Q726	C-5
D519	B-5	Q727	C-5
D521	E-7	Q728	C-5
D524	C-9	Q732	A-9
D651	G-2	Q733	C-3
D701	G-3	Q735	D-1
D704	B-2	Q736	D-6
D706	D-9		

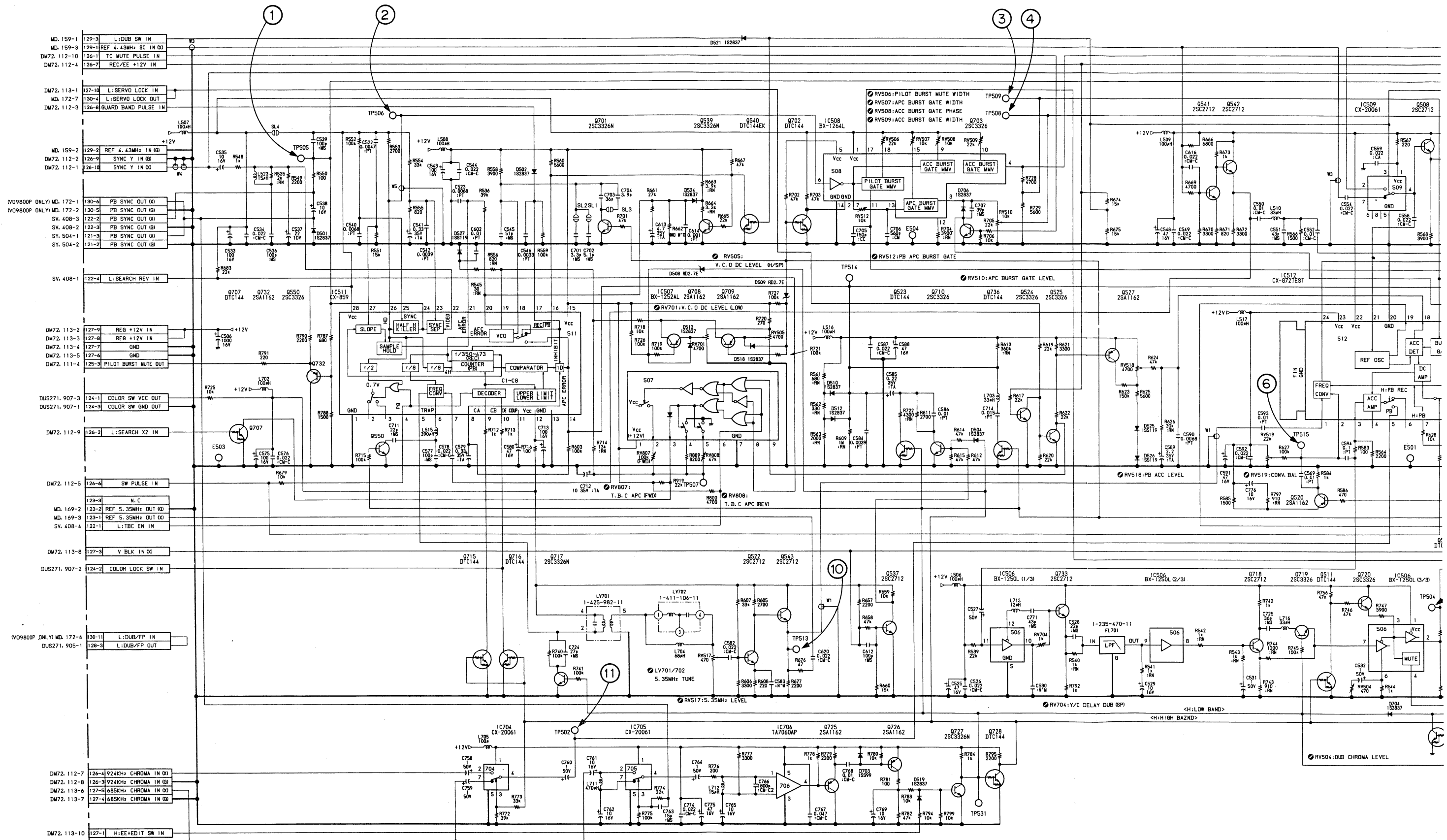
Q508	E-7		
Q509	F-7		
Q510	B-1		
Q511	D-1		
Q520	E-3		
Q521	D-2		
Q522	B-6		
Q523	D-7		
Q524	D-5		
Q525	D-5		
Q527	D-5		
Q528	E-3		
Q529	E-2		
Q530	E-3		
Q531	F-3		
Q532	F-1		
Q533	F-3		
Q534	E-3		
Q537	C-6		
Q539	D-8		
Q540	D-8		
Q541	E-6		
Q542	E-6		
Q543	B-6		
Q544	F-5		
Q545	F-4		
Q550	B-7		
Q601	H-4		
Q602	G-2		
Q603	H-2		
Q604	G-2		
Q605	H-4		
Q701	C-9		
Q702	E-9		
Q703	D-9		
Q704	E-4		
Q705	E-5		
Q706	E-4		
Q707	C-6		
Q708	E-8		
Q709	E-8		
Q710	D-6		
Q712	E-2		
Q713	F-3		
Q714	G-3		

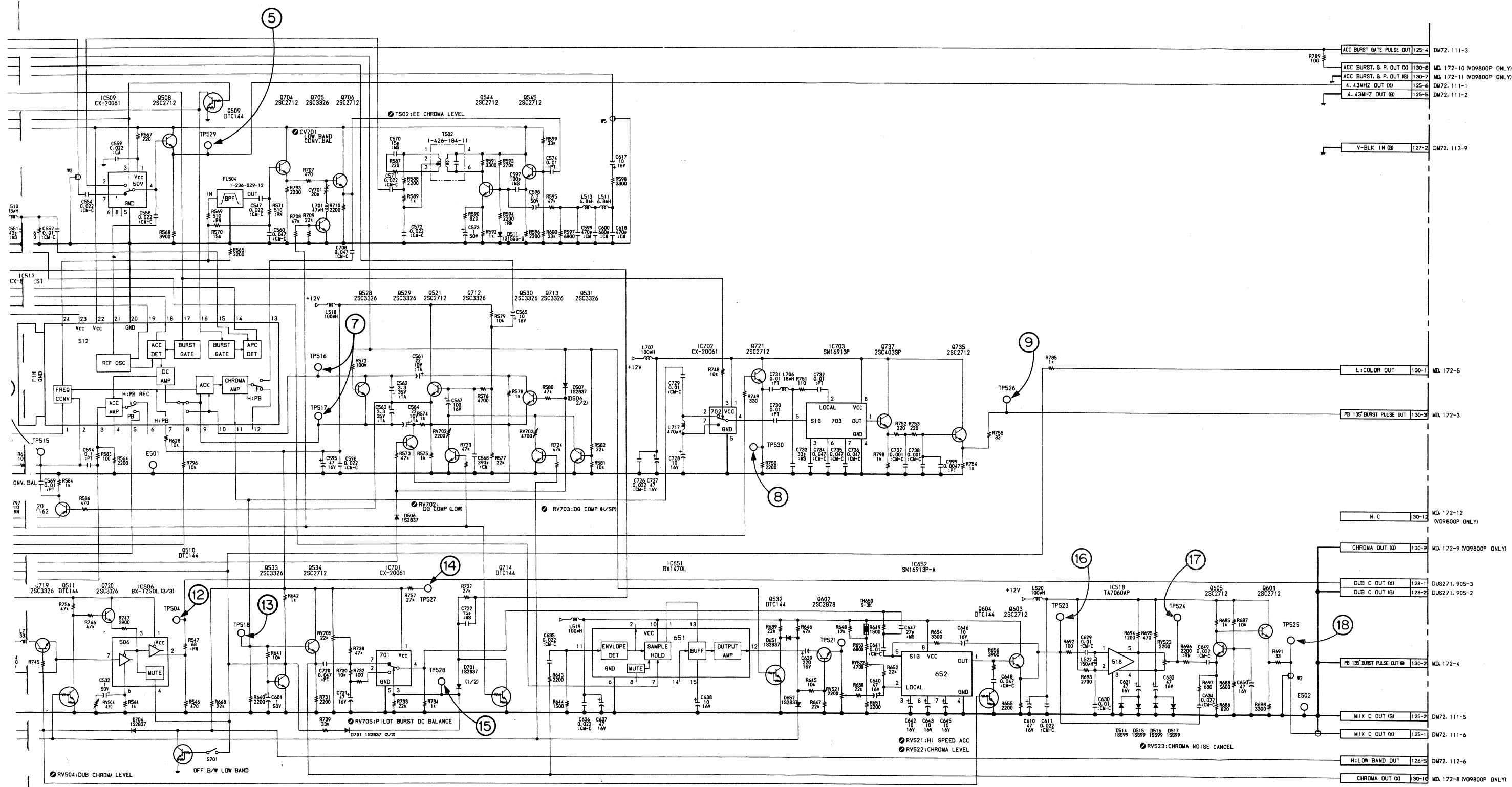


DM-73

—SOLDERING SIDE—
1-629-865-11
VO-9850P
VO-9800P

DM-73: C PB PROCESSOR

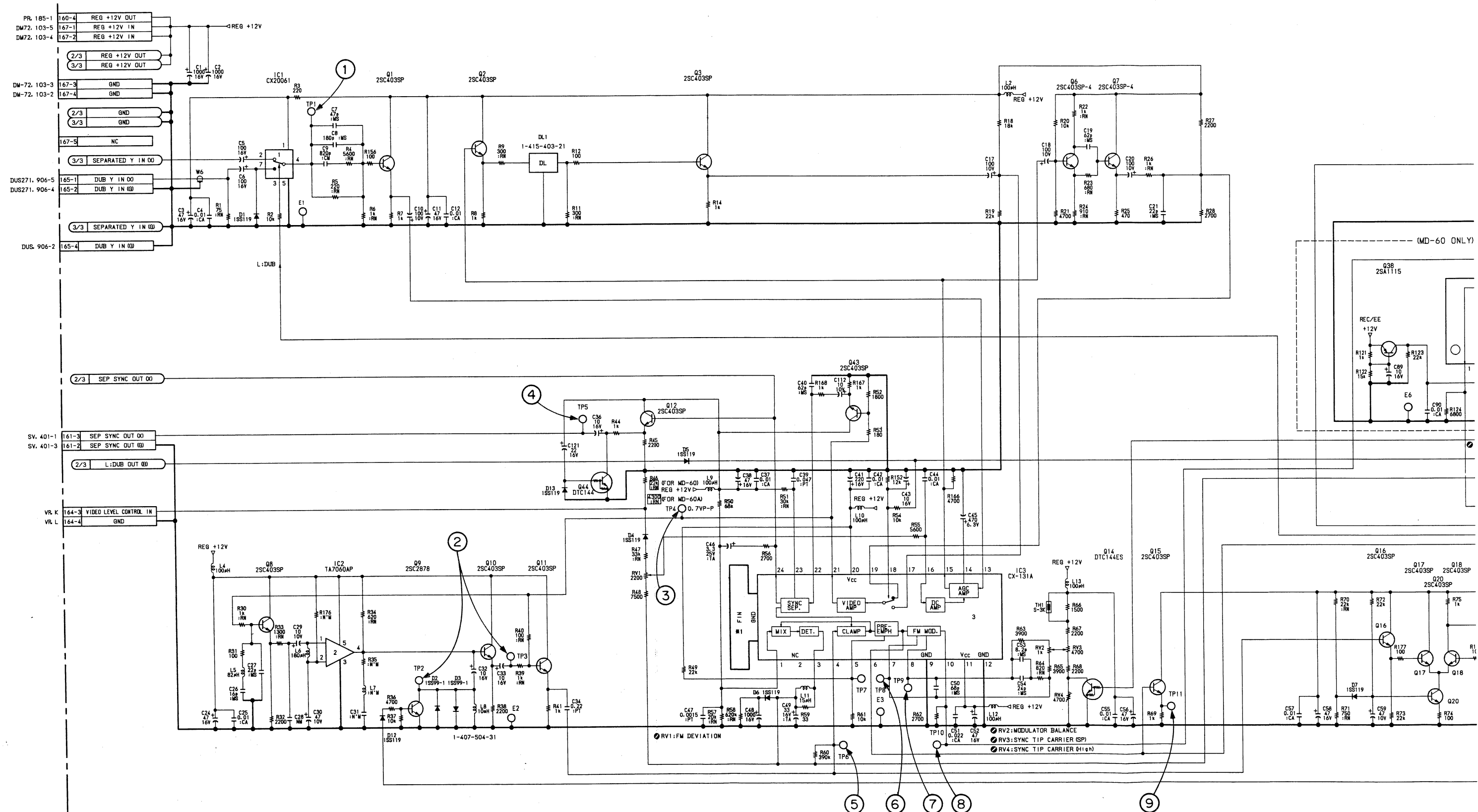




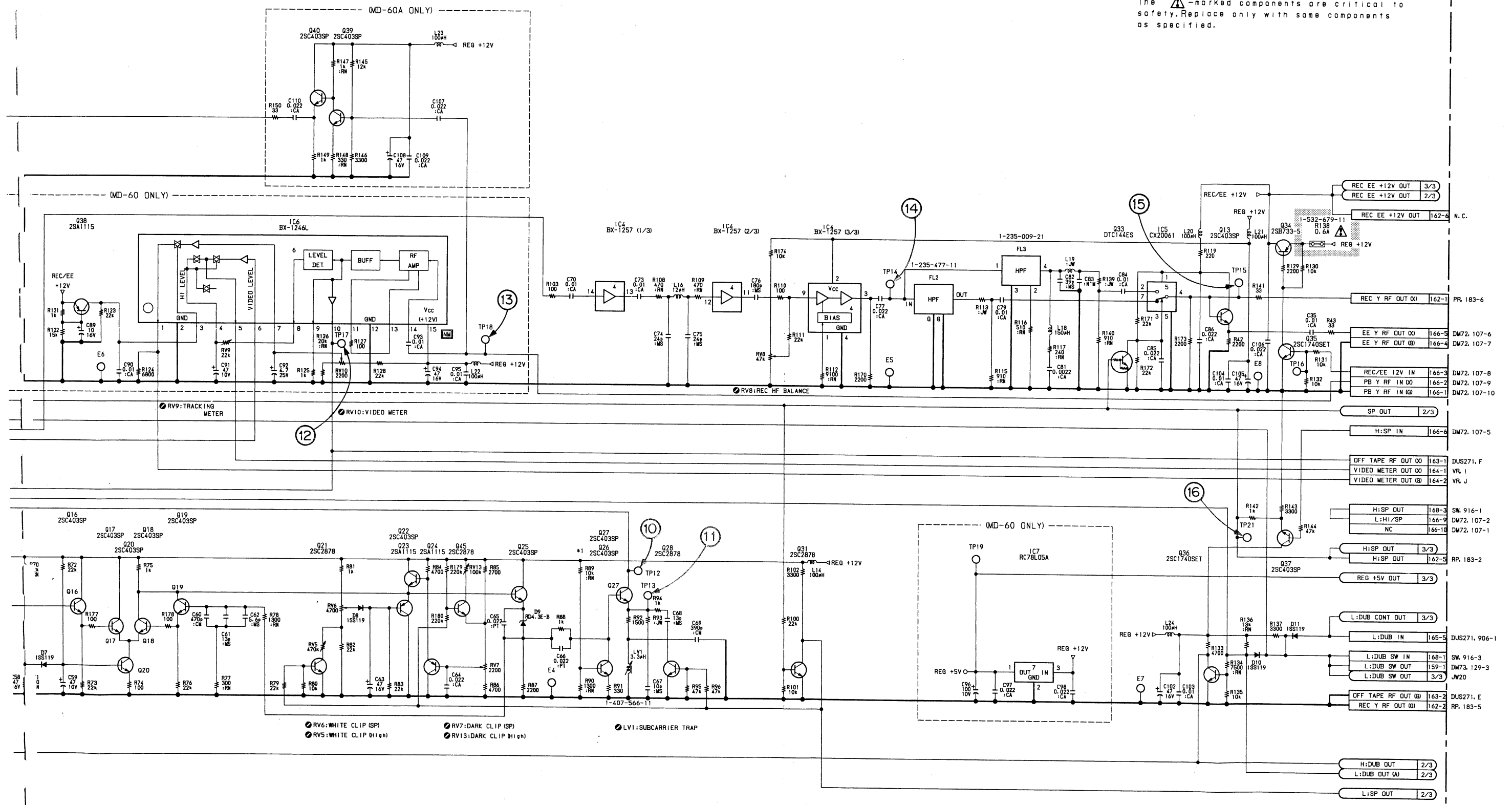
DM-73

1-629-865-11
VO-9850P
VO-9800P

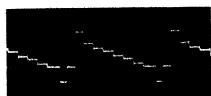
MD-60 (1/3): Y MODULATOR, METER DRIVE



NOTE:
The Δ -marked components are critical to safety. Replace only with same components as specified.

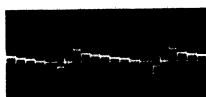


① TP1
REC



H: 20μsec / div
V: 0.5V / div

⑪ TP13
REC



H: 20μsec / div
V: 1V / div

② TP2
TP3
REC



H: 20μsec / div
V: 0.2V / div

⑫ TP17
REC



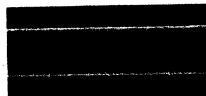
H: 10μsec / div
V: 0.5V / div

③ TP4
REC



H: 20μsec / div
V: 0.5V / div

PB



H: 10μsec / div
V: 0.5V / div

④ TP5
REC



H: 20μsec / div
V: 2V / div

⑬ TP18
PB



H: 10μsec / div
V: 0.2V / div

⑤ TP6
REC



H: 20μsec / div
V: 0.5V / div

⑭ TP14
REC



H: 20μsec / div
V: 2V / div

⑥ TP8
REC



H: 0.1μsec / div
V: 0.5V / div

⑮ TP15
REC



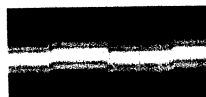
H: 0.1μsec / div
V: 1V / div

⑦ TP9
REC



H: 0.1μsec / div
V: 0.5V / div

⑯ TP21
REC



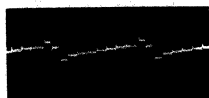
H: 10μsec / div
V: 0.05V / div

⑧ TP10
REC



H: 0.1μsec / div
V: 1V / div

⑨ TP11
REC



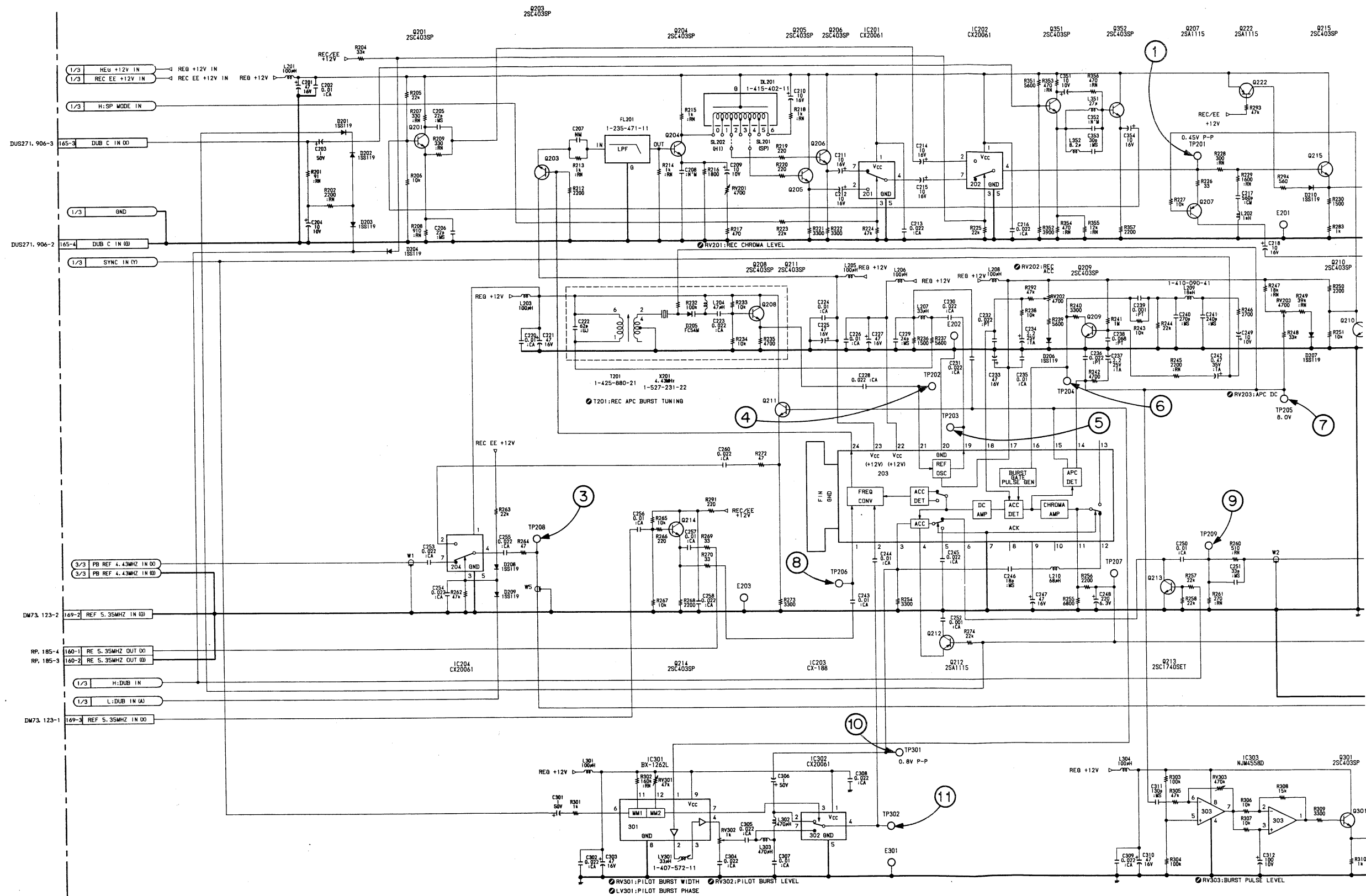
H: 20μsec / div
V: 1V / div

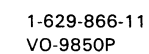
⑩ TP12
REC



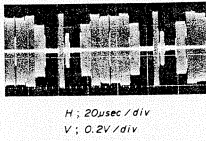
H: 20μsec / div
V: 1V / div

15-26

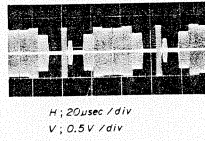




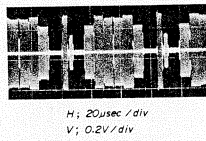
① TP201
REC



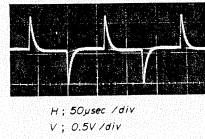
⑪ TP302
REC



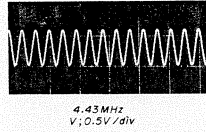
② TP210
REC



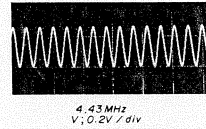
⑫ TP304
REC



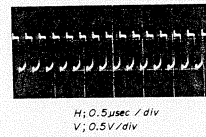
③ TP208
REC



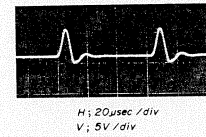
④ TP202
REC



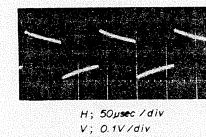
⑤ TP203
REC



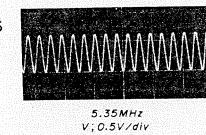
⑥ TP204
REC



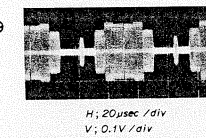
⑦ TP205
REC



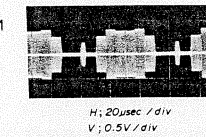
⑧ TP206
REC



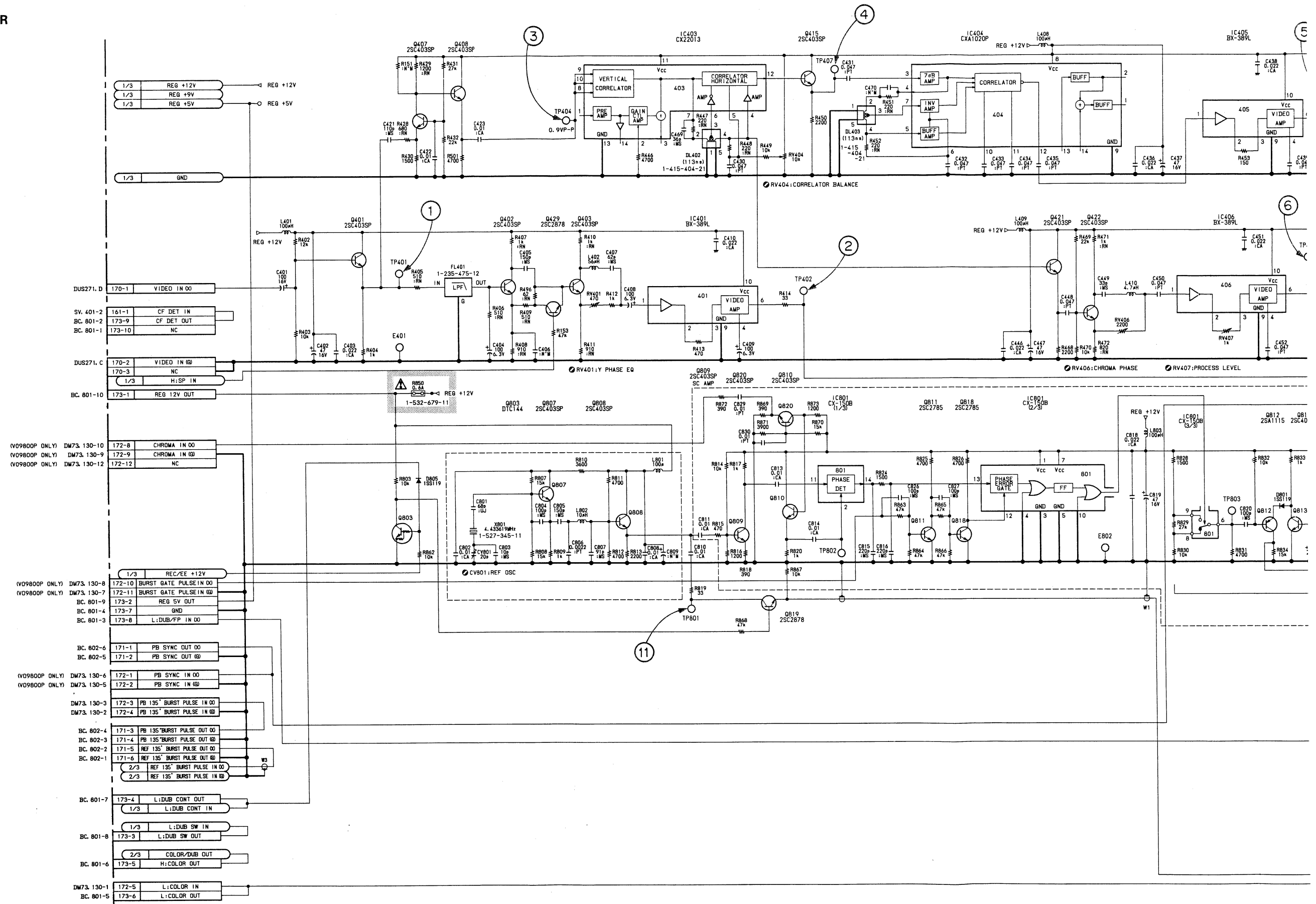
⑨ TP209
REC

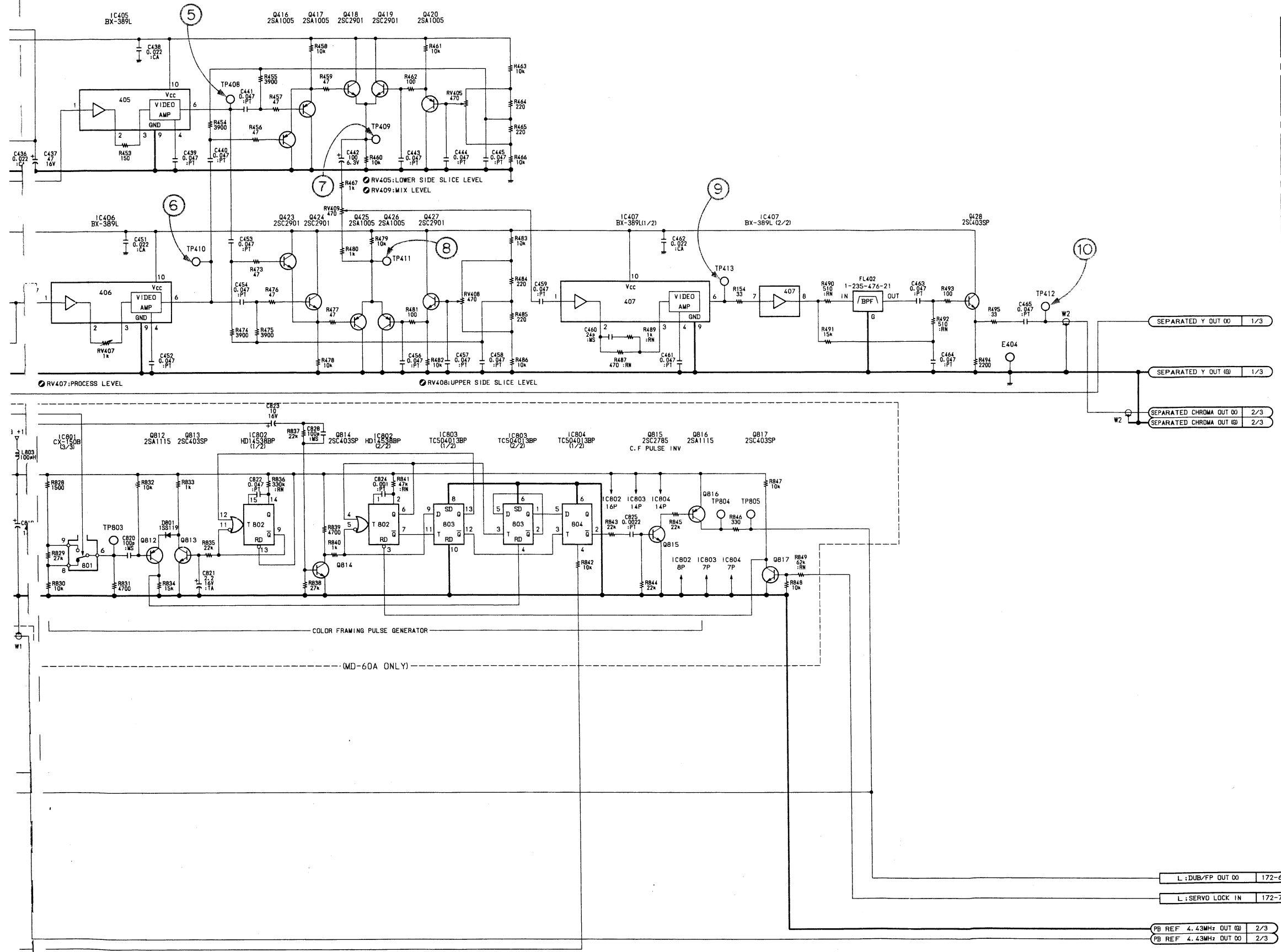


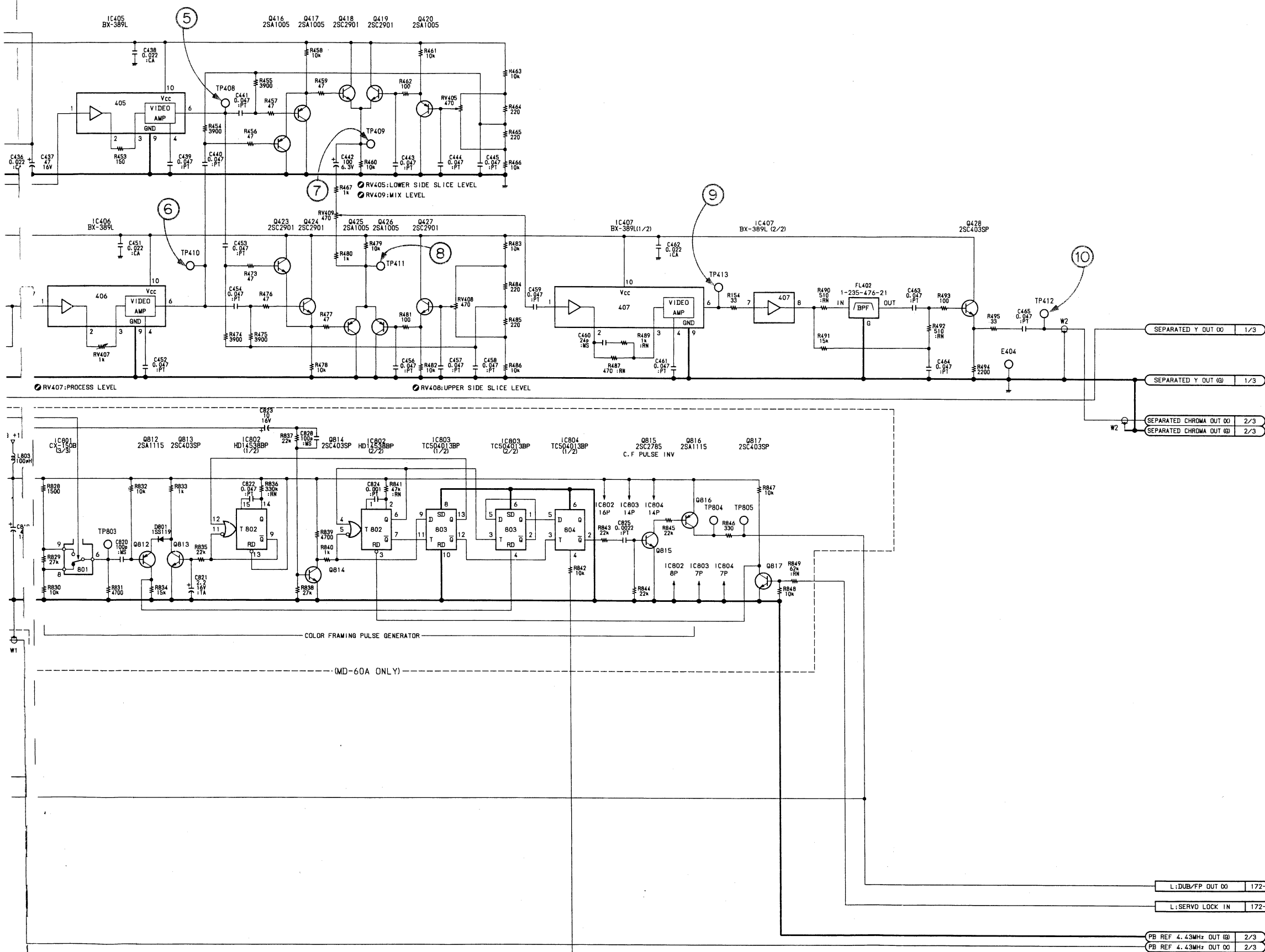
⑩ TP301
REC



MD-60 (3/3): Y/C SEPARATOR







NOTE:
The Δ -marked components are critical to safety. Replace only with same components as specified.

DW73. 130-11 (V09800P ONLY)

DW73. 130-4

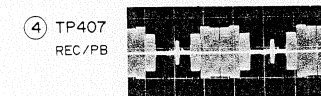
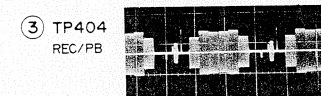
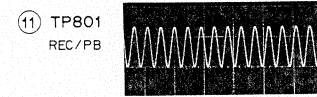
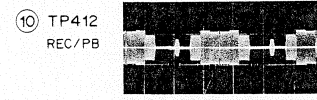
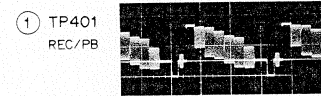
MD-60 (3/3)

1-629-866-11
V0-9850P

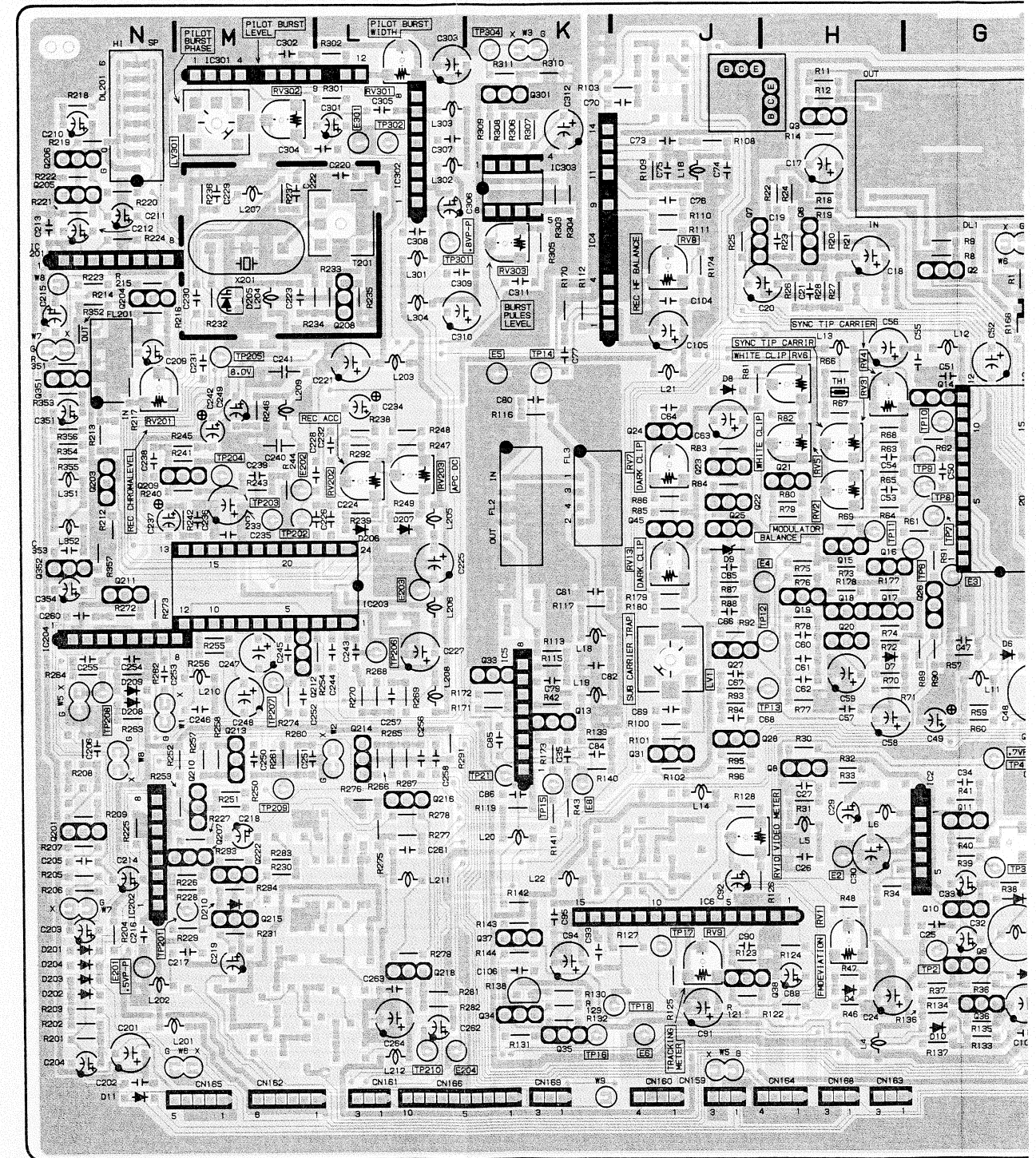
MD-60: Y/C SEPARATOR, Y MODULATOR, C REC PROCESSOR, METER DRIVE

MD-60 (1-629-866-11) C

MD-60 (1-629-866-11) S



CN159	J-1	IC203	M-4	Q214	L-3	E1	F-7
CN160	J-1	IC204	N-4	Q215	M-2	E2	H-3
CN161	L-1	IC301	M-8	Q216	L-3	E3	G-4
CN162	M-1	IC302	L-7	Q218	L-2	E4	H-4
CN163	H-1	IC303	K-7	Q222	M-2	E5	K-6
CN164	H-1	IC401	F-4	Q301	K-8	E6	J-1
CN165	M-1	IC403	D-4	Q351	N-6	E7	F-2
CN166	L-1	IC404	D-5	Q352	N-4	E8	K-3
CN167	F-1	IC405	D-5	Q401	E-1	E201	N-2
CN168	H-1	IC406	C-5	Q402	E-2	E202	M-5
CN169	K-1	IC407	A-7	Q403	E-3	E203	L-4
CN170	E-1			Q407	D-2	E204	L-1
CN171	C-1	LV1	J-4	Q408	D-3	E301	L-7
CN172	C-1	LV301	M-8	Q415	D-4	E401	E-1
CN173	D-1			Q416	C-6	E404	B-5
		Q1	F-6	Q417	D-6		
CV801	F-7	Q2	G-6	Q418	D-6	TP1	F-6
		Q3	H-7	Q419	D-6	TP2	G-3
D1	G-6	Q6	H-7	Q420	D-7	TP3	G-3
D2	G-2	Q7	J-7	Q421	C-4	TP4	G-3
D3	G-3	Q8	H-3	Q422	C-5	TP5	F-3
D4	H-2	Q9	G-2	Q423	C-6	TP6	G-5
D5	F-5	Q10	G-2	Q424	B-6	TP7	G-5
D6	G-4	Q11	G-3	Q425	C-6	TP8	G-5
D7	H-4	Q12	F-3	Q426	C-6	TP9	G-5
D8	J-6	Q13	K-3	Q427	C-7	TP10	G-5
D9	J-5	Q14	G-6	Q428	B-5	TP11	H-5
D10	G-1	Q15	H-5	Q429	E-2	TP12	H-4
D11	N-1	Q16	H-4	Q801	C-1	TP13	H-4
D12	G-2	Q17	H-4	Q802	C-2	TP14	K-6
D13	F-3	Q18	H-4	Q803	D-2	TP15	K-3
D201	N-2	Q19	H-4	Q807	E-8	TP16	K-1
D202	N-2	Q20	H-4	Q808	E-8	TP17	J-2
D203	N-2	Q21	H-5			TP18	J-2
D204	N-2	Q22	J-5	RV1	H-2	TP19	F-3
D205	M-6	Q23	J-5	RV2	H-5	TP21	K-3
D206	L-5	Q24	J-5	RV3	H-5	TP201	N-2
D207	L-5	Q25	J-5	RV4	H-6	TP202	M-5
D208	N-4	Q26	G-4	RV5	H-5	TP203	M-5
D209	N-4	Q27	J-4	RV6	H-6	TP204	M-5
D210	M-2	Q28	J-3	RV7	J-5	TP205	M-6
D805	D-2	Q31	J-3	RV8	J-7	TP206	L-4
		Q33	K-4	RV9	J-2	TP207	M-4
DL1	G-7	Q34	K-1	RV10	J-3	TP208	N-4
DL201	N-7	Q35	K-1	RV13	J-5	TP209	M-3
DL402	C-3	Q36	G-2	RV201	N-6	TP210	L-1
DL403	C-4	Q37	K-2	RV202	L-5	TP301	L-7
		Q38	J-2	RV203	L-5	TP302	L-7
FL2	K-5	Q43	F-5	RV301	L-8	TP304	K-8
FL3	K-5	Q44	G-3	RV302	M-7	TP401	D-2
FL201	N-6	Q45	J-5	RV303	K-7	TP402	E-4
FL401	E-2	Q201	N-3	RV401	E-3	TP404	D-3
FL402	A-5	Q203	N-5	RV404	D-4	TP407	D-4
		Q204	N-6	RV405	D-7	TP408	D-5
IC1	F-6	Q205	N-7	RV406	C-5	TP409	D-6
IC2	G-3	Q206	N-7	RV407	C-6	TP410	B-6
IC3	G-5	Q207	M-3	RV408	B-7	TP411	B-6
IC4	K-7	Q208	L-6	RV409	C-6	TP412	B-5
IC5	K-3	Q209	M-5			TP413	A-7
IC6	J-2	Q210	M-3	T201	M-7	TP801	D-7
IC7	F-2	Q211	N-4				
IC201	N-7	Q212	M-4	X201	M-7		
IC202	N-3	Q213	M-3	X801	F-7		

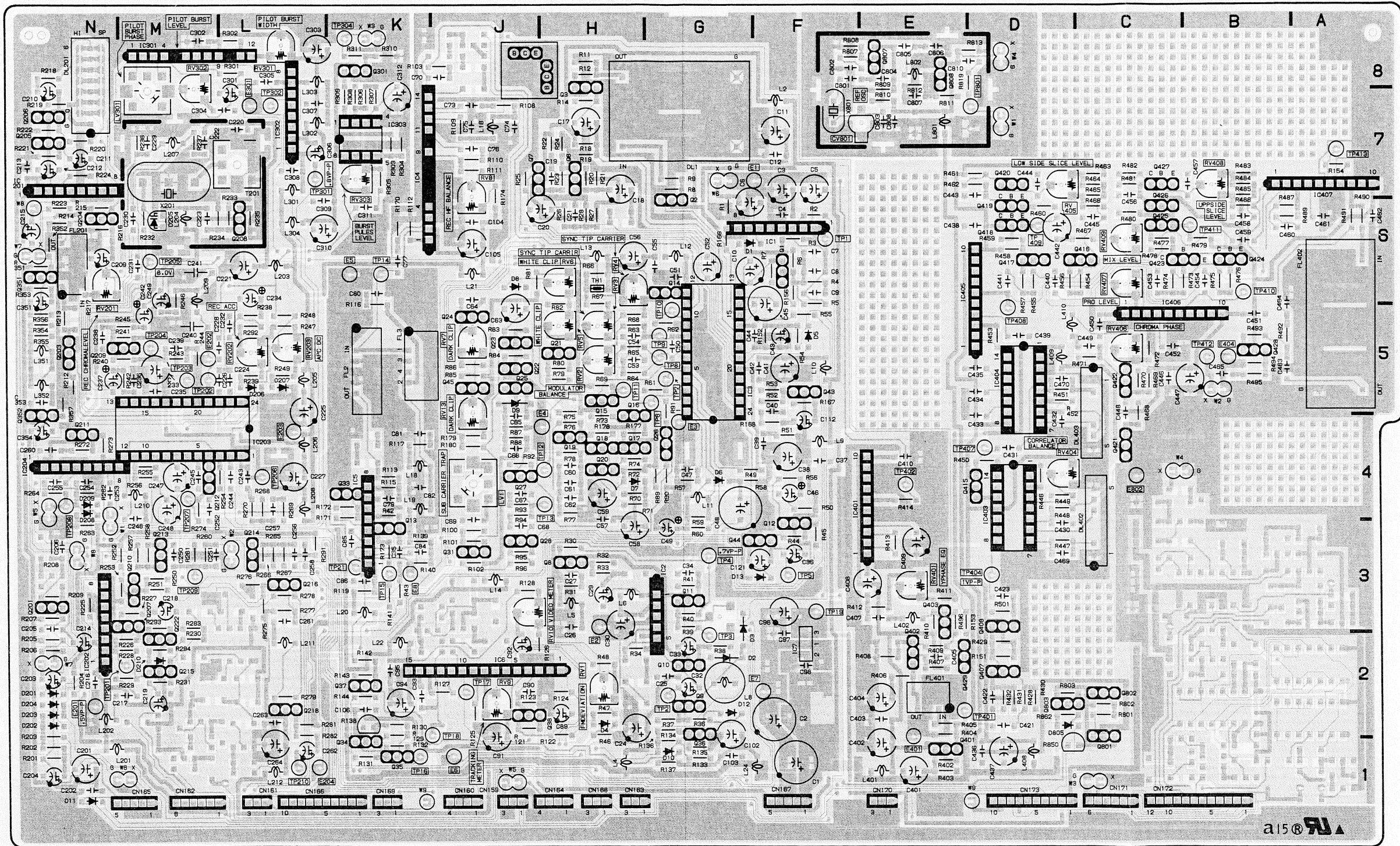


JL TOR, C REC PROCESSOR, METER DRIVE

MD-60 (1-629-866-11) S

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M-7
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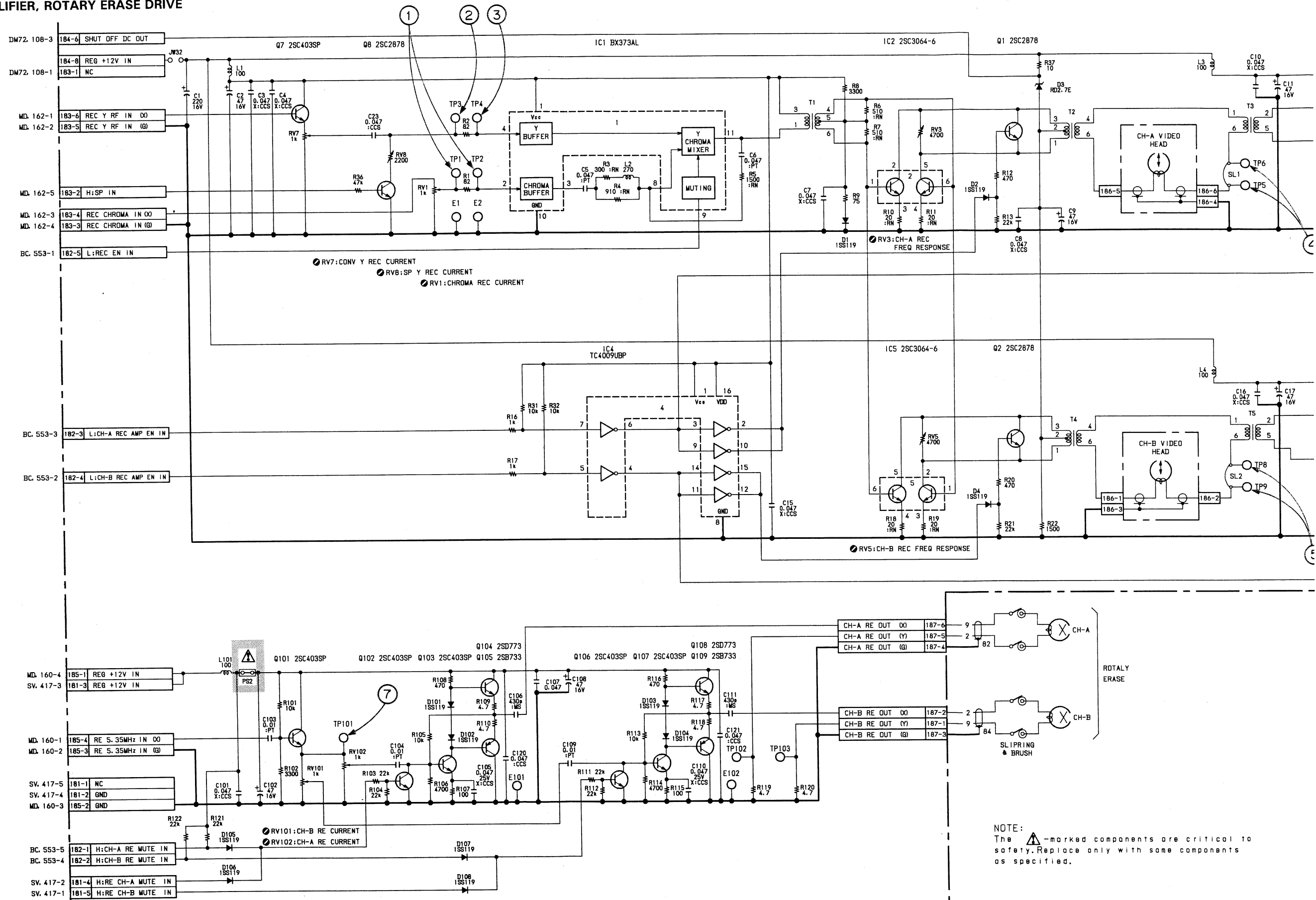
- | | |
|-------|-----|
| E1 | F-7 |
| E2 | H-3 |
| E3 | G-4 |
| E4 | H-4 |
| E5 | K-6 |
| E6 | J-1 |
| E7 | F-2 |
| E8 | K-3 |
| E201 | N-2 |
| E202 | M-5 |
| E203 | L-4 |
| E204 | L-1 |
| E301 | L-7 |
| E401 | E-1 |
| E404 | B-5 |
| TP1 | F-6 |
| TP2 | G-3 |
| TP3 | G-3 |
| TP4 | G-3 |
| TP5 | F-3 |
| TP6 | G-5 |
| TP7 | G-5 |
| TP8 | G-5 |
| TP9 | G-5 |
| TP10 | G-5 |
| TP11 | H-5 |
| TP12 | H-4 |
| TP13 | H-4 |
| TP14 | K-6 |
| TP15 | K-3 |
| TP16 | K-1 |
| TP17 | J-2 |
| TP18 | J-2 |
| TP19 | F-3 |
| TP21 | K-3 |
| TP201 | N-2 |
| TP202 | M-5 |
| TP203 | M-5 |
| TP204 | M-5 |
| TP205 | M-6 |
| TP206 | L-4 |
| TP207 | M-4 |
| TP208 | N-4 |
| TP209 | M-3 |
| TP210 | L-1 |
| TP301 | L-7 |
| TP302 | L-7 |
| TP304 | K-8 |
| TP401 | D-2 |
| TP402 | E-4 |
| TP404 | D-3 |
| TP407 | D-4 |
| TP408 | D-5 |
| TP409 | D-6 |
| TP410 | B-6 |
| TP411 | B-6 |
| TP412 | B-5 |
| TP413 | A-7 |
| TP801 | D-7 |

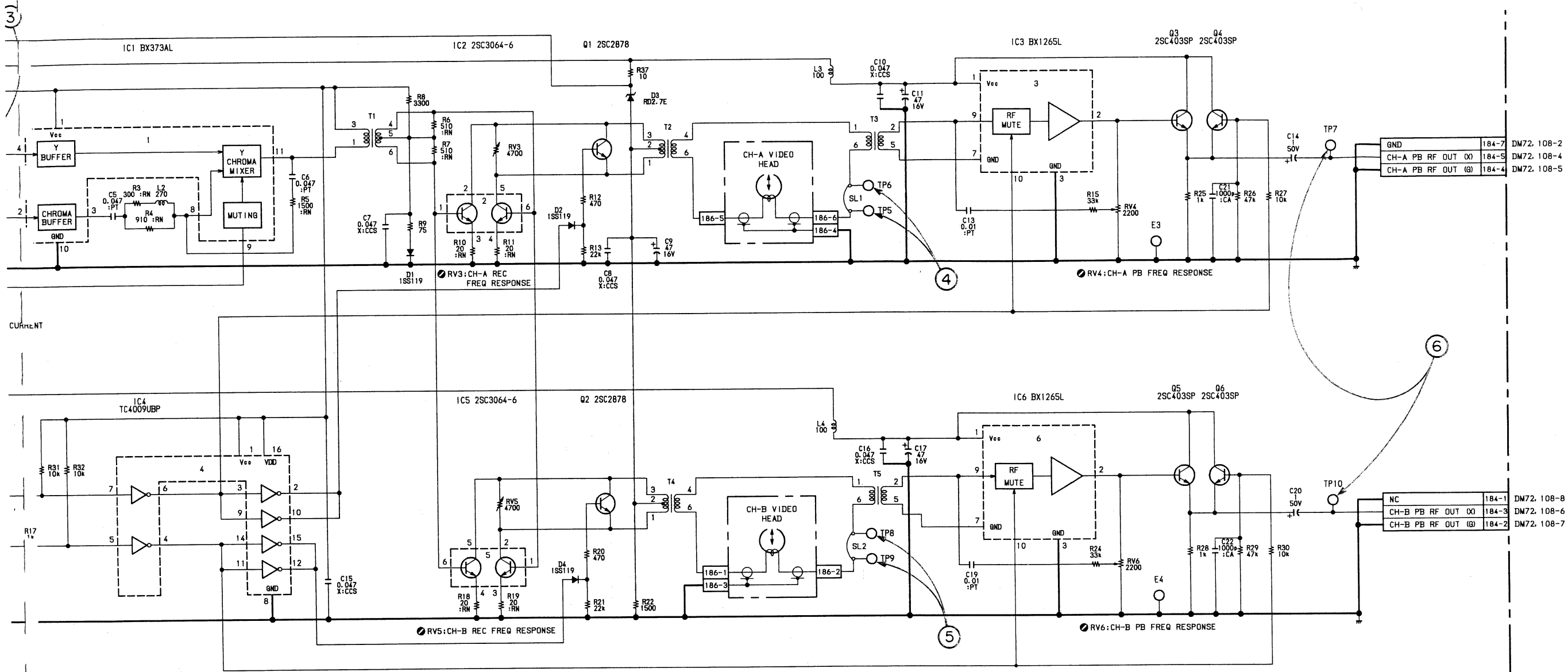


MD-60

— SOLDERING SIDE —
1-629-866-11
VO-9850P

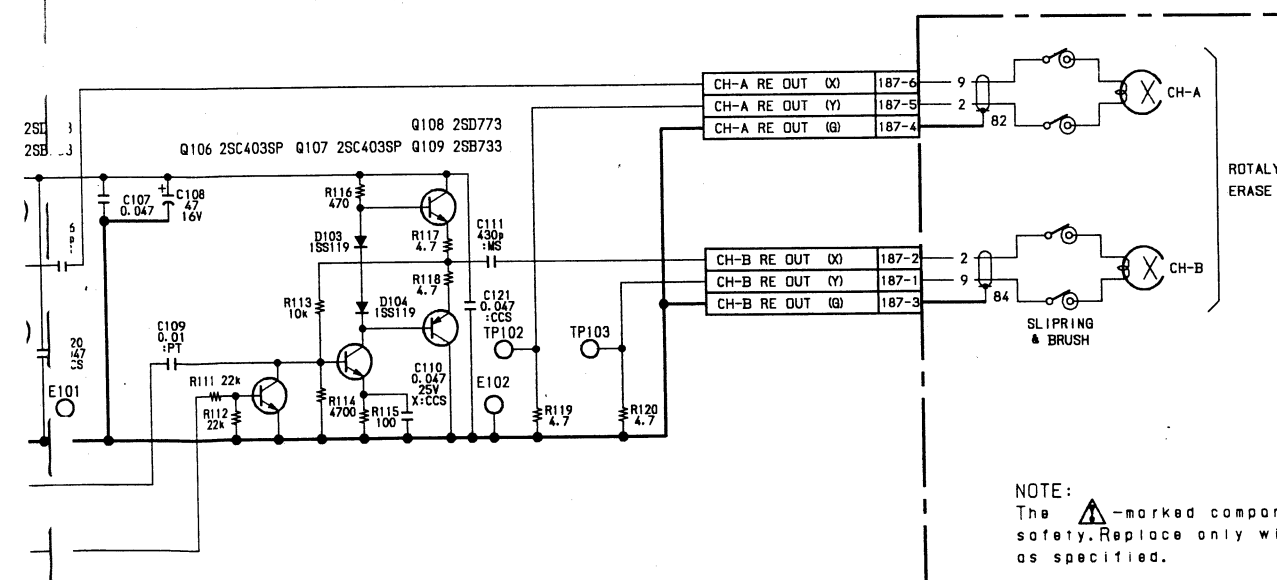
RP-40B: REC/PB AMPLIFIER, ROTARY ERASE DRIVE





RP-40B

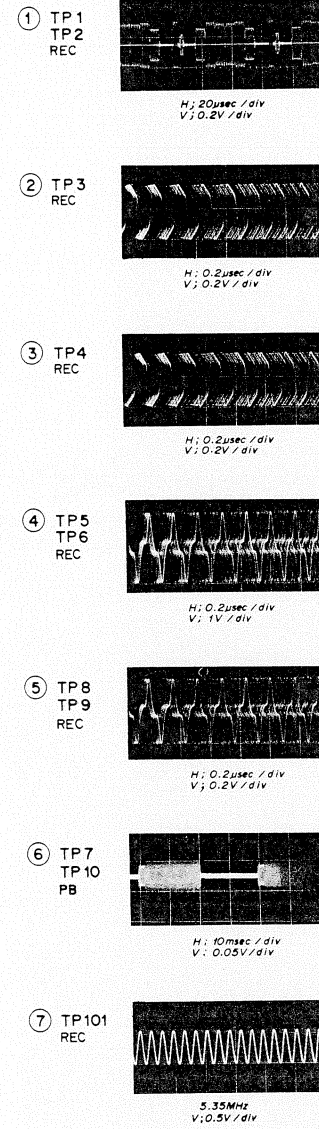
1-629-476-11
VO-9850P



RP-40B: REC/PB AMPLIFIER, ROTARY ERASE DRIVE

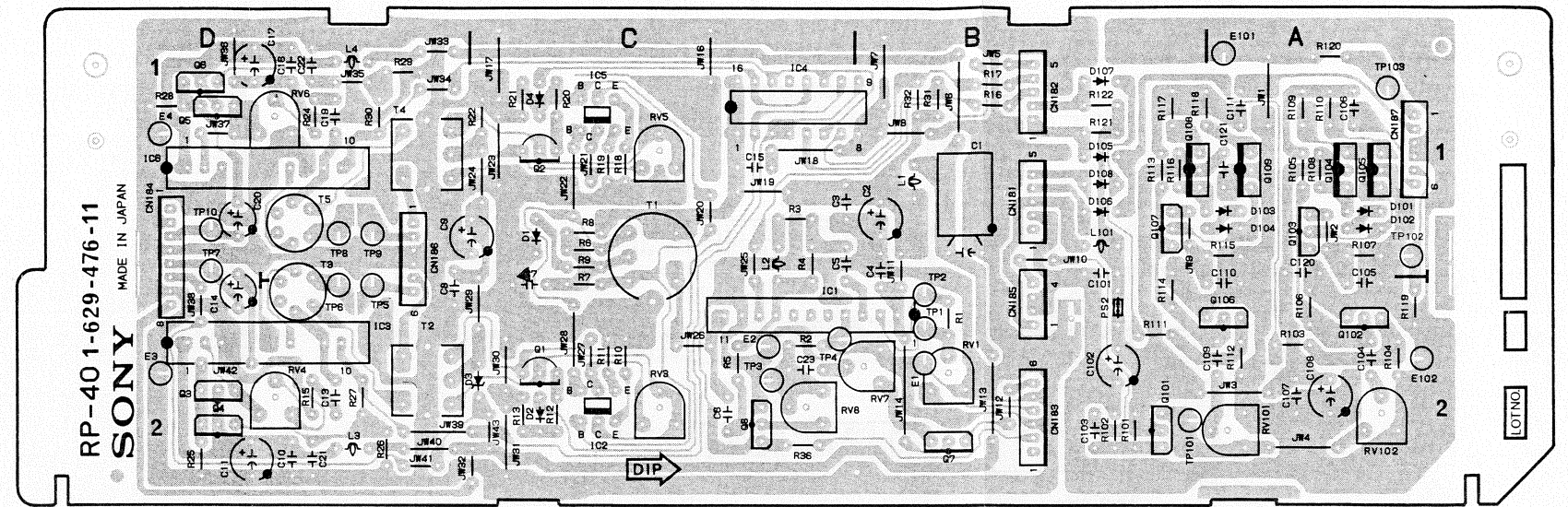
RP-40B (1-629-746-11) C

RP-40B (1-629-746-11) S



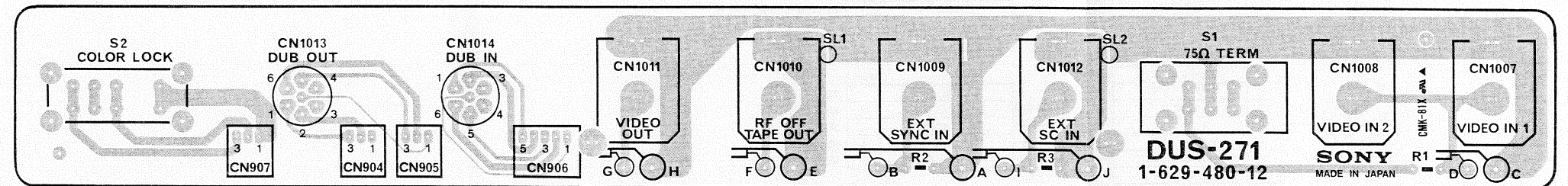
CN181	B-1
CN182	B-1
CN183	B-2
CN184	D-1
CN185	B-2
CN186	D-1
CN187	A-1
D1	C-1
D2	C-2
D3	D-2
D4	C-1
D101	A-1
D102	A-1
D103	A-1
D104	A-1
D105	B-1
D106	B-1
D107	B-1
D108	B-1
IC1	C-2
IC2	C-2
IC3	D-2
IC4	C-1
IC5	C-1
IC6	D-1
L1	B-1
L2	C-1
L3	D-2
L4	D-1
L101	B-1
PS2	B-2
Q1	C-2
Q2	C-1
Q3	D-2
Q4	D-2
Q5	D-1
Q6	D-1
Q7	B-2
Q8	C-2
Q101	B-2
Q102	A-2
Q103	A-1
Q104	A-1
Q105	A-1
Q106	A-2
Q107	B-1
Q108	B-1
Q109	A-1
RV1	B-2
RV3	C-2
RV4	D-2
RV5	C-1
RV6	D-1
RV7	B-2
RV8	C-2
RV101	A-2
RV102	A-2

E1	B-2
E2	C-2
E3	D-2
E4	D-1
E101	A-1
E102	A-2
TP1	B-2
TP2	B-1
TP3	C-2
TP4	C-2
TP5	D-1
TP6	D-1
TP7	D-1
TP8	D-1
TP9	D-1
TP10	D-1
TP101	B-2
TP102	A-1
TP103	A-1
T1	C-1
T2	D-2
T3	D-1
T4	D-1
T5	D-1



RP-40B

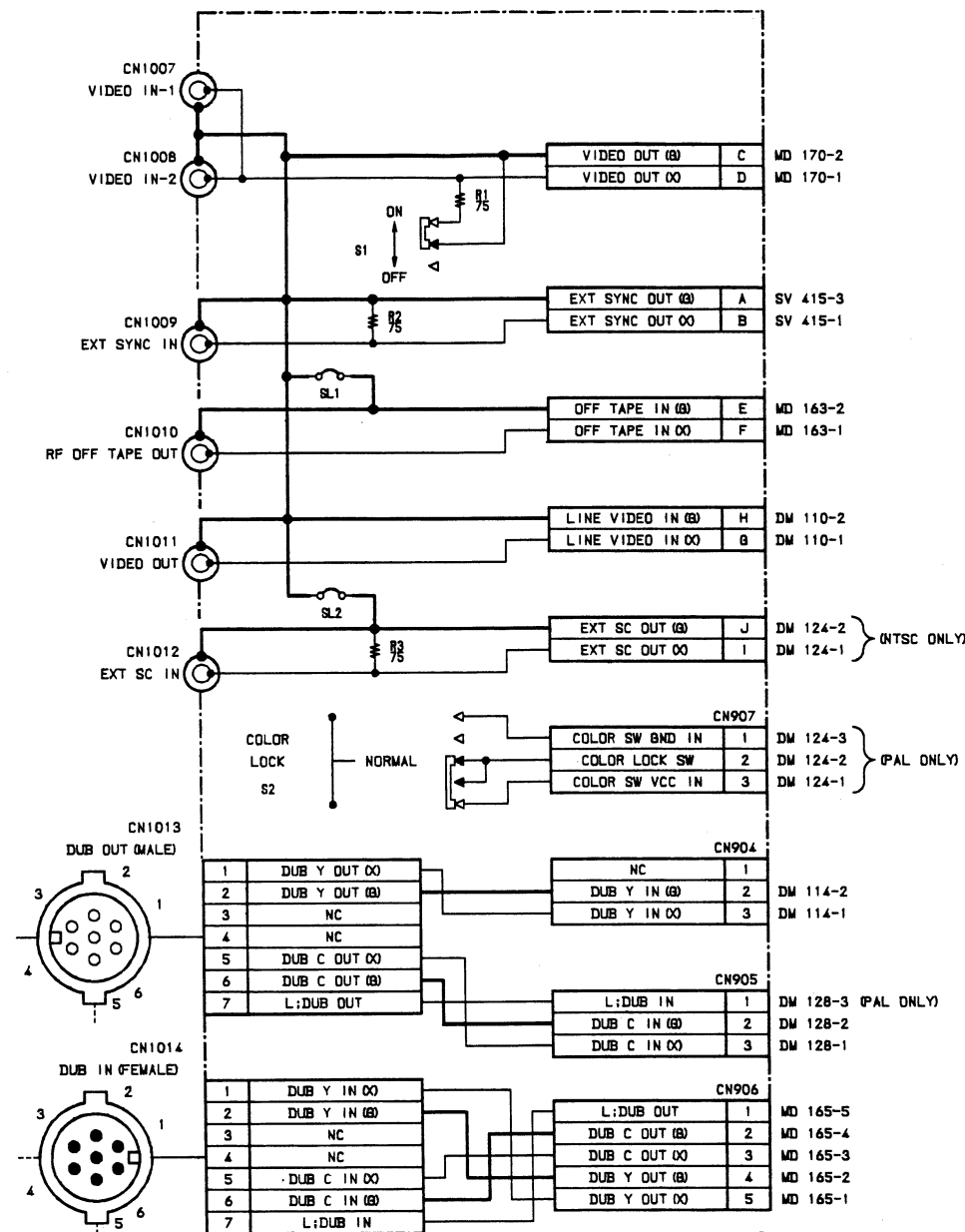
— COMPONENT SIDE —
1-629-476-11
VO-9850P



DUS-271

— COMPONENT SIDE —
1-629-480-12
VO-9850
VO-9850P
VO-9800
VO-9800P

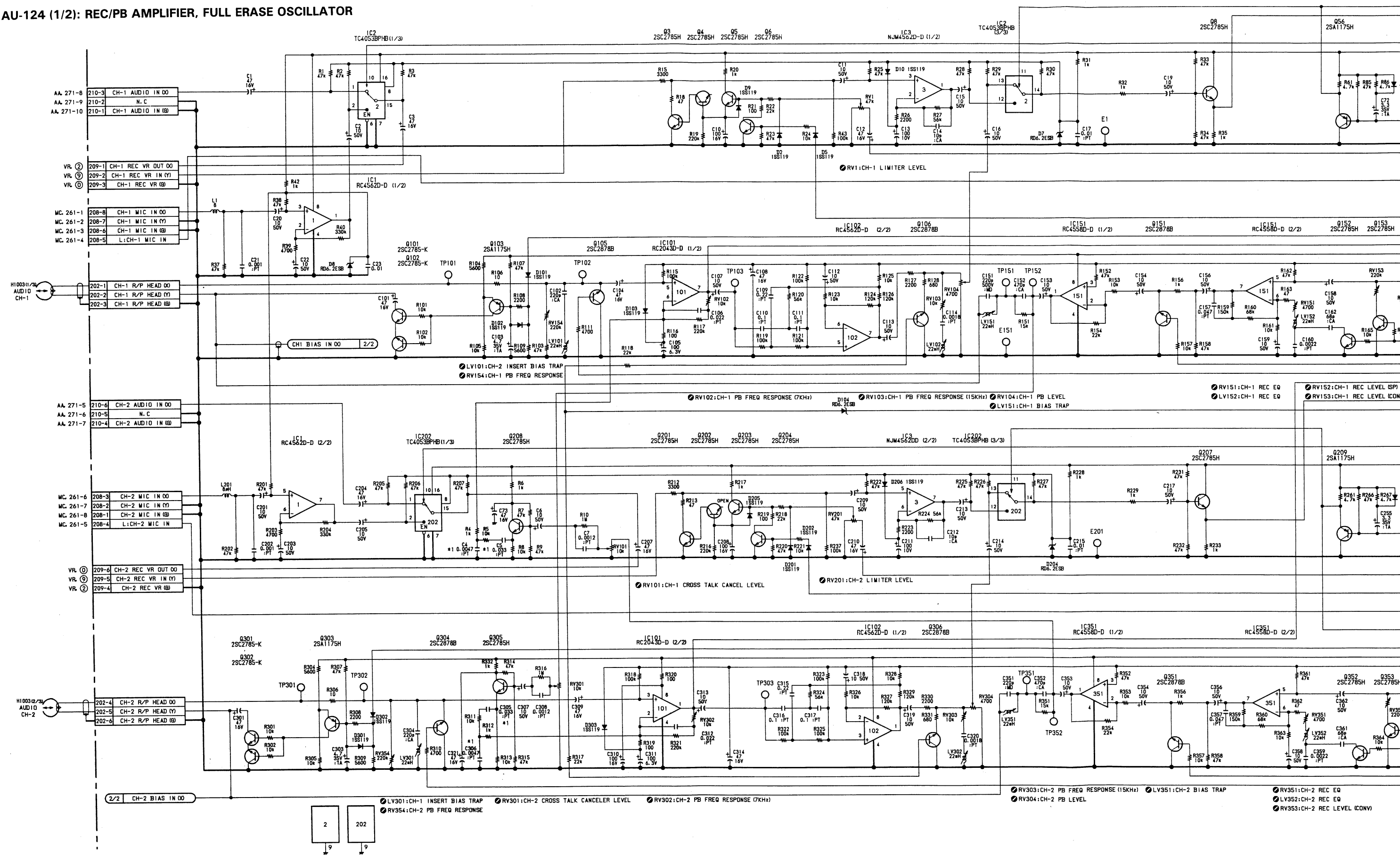
DUS-271: CONNECTOR

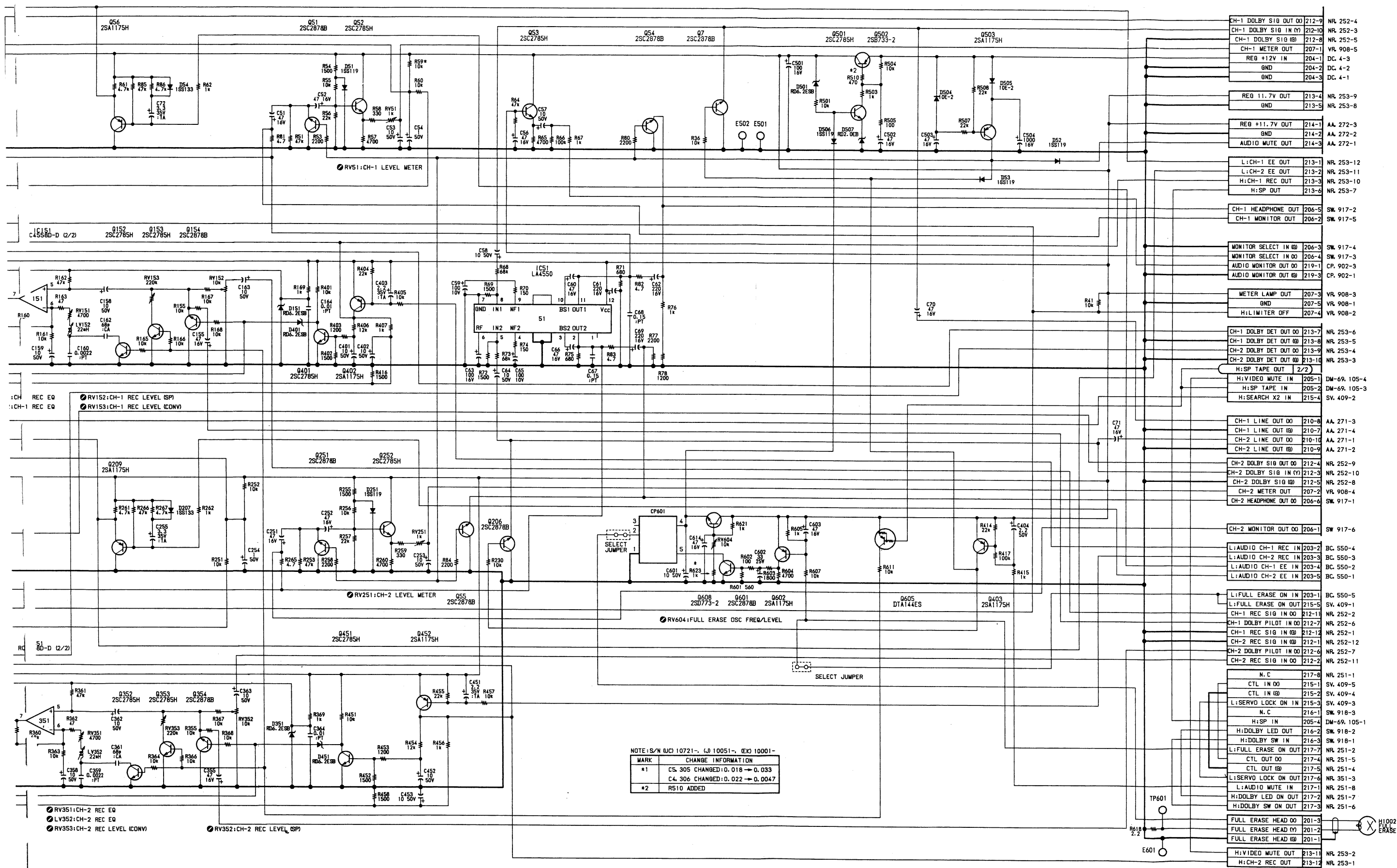


DUS-271

1-629-480-11,12
VO-9850
VO-9850P
VO-9800
VO-9800P

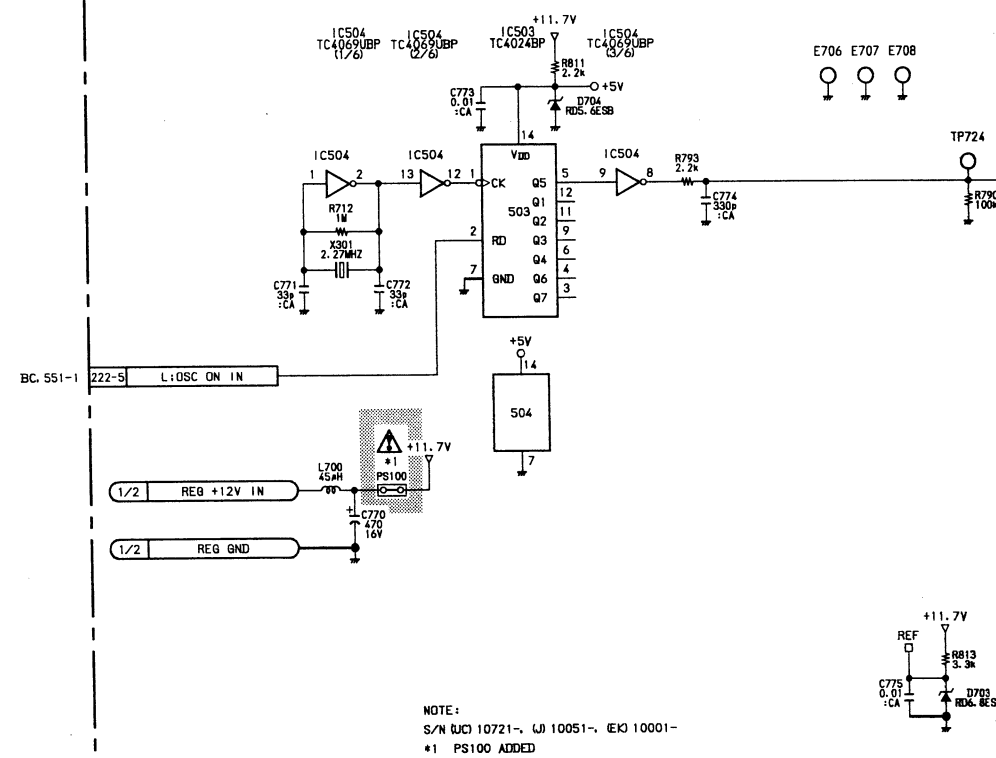
AU-124 (1/2): REC/PB AMPLIFIER, FULL ERASE OSCILLATOR





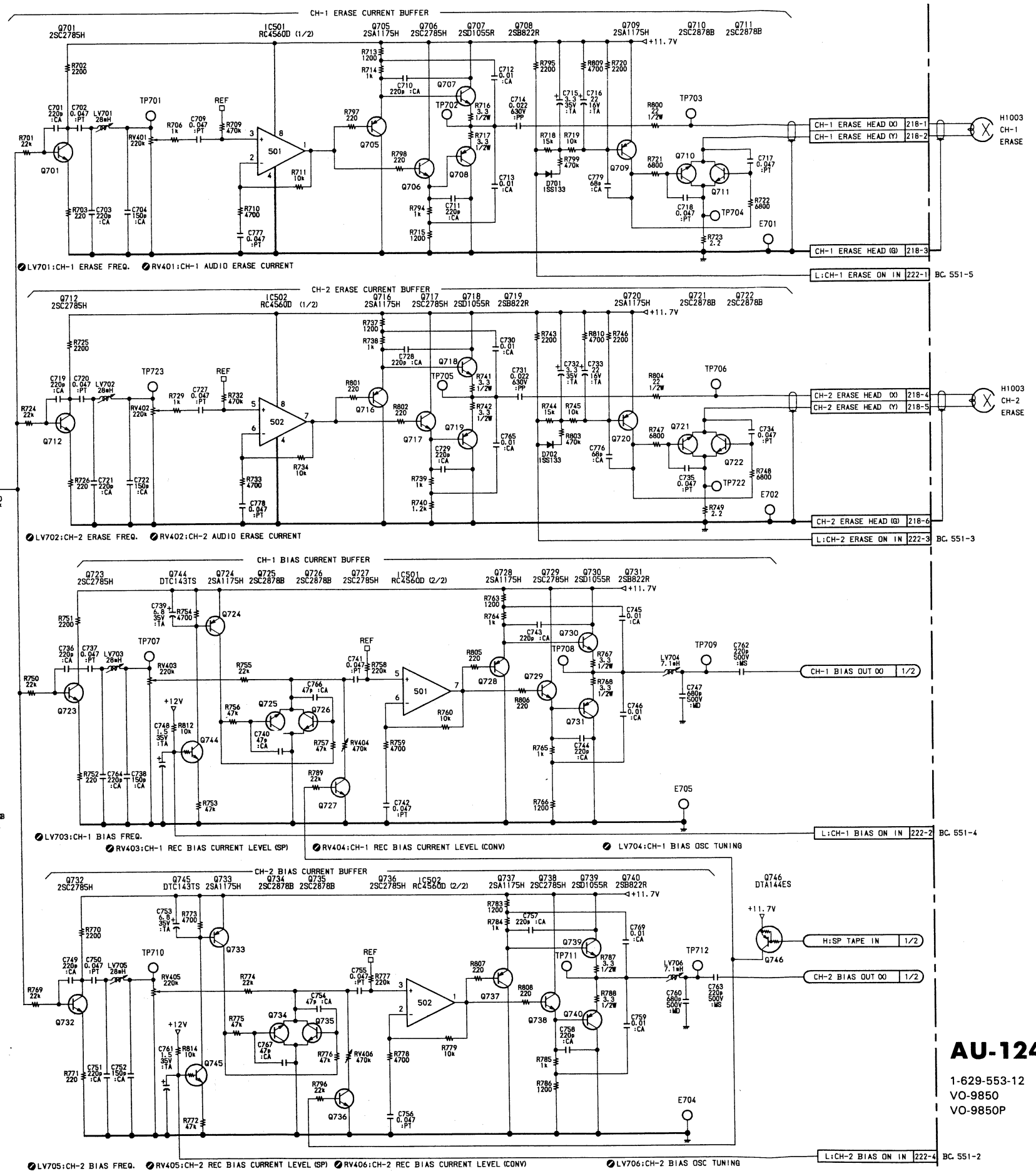
AU-124 (2/2): ERASE/BIAS OSCILLATOR

AU-124 (2/2) AU-124 (2/2)



注意 1: 印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の部品を使って下さい。

NOTE:
The -marked components are critical to safety. Replace only with same components as specified.



AU-124 (2/2)
1-629-553-12
VO-9850
VO-9850P

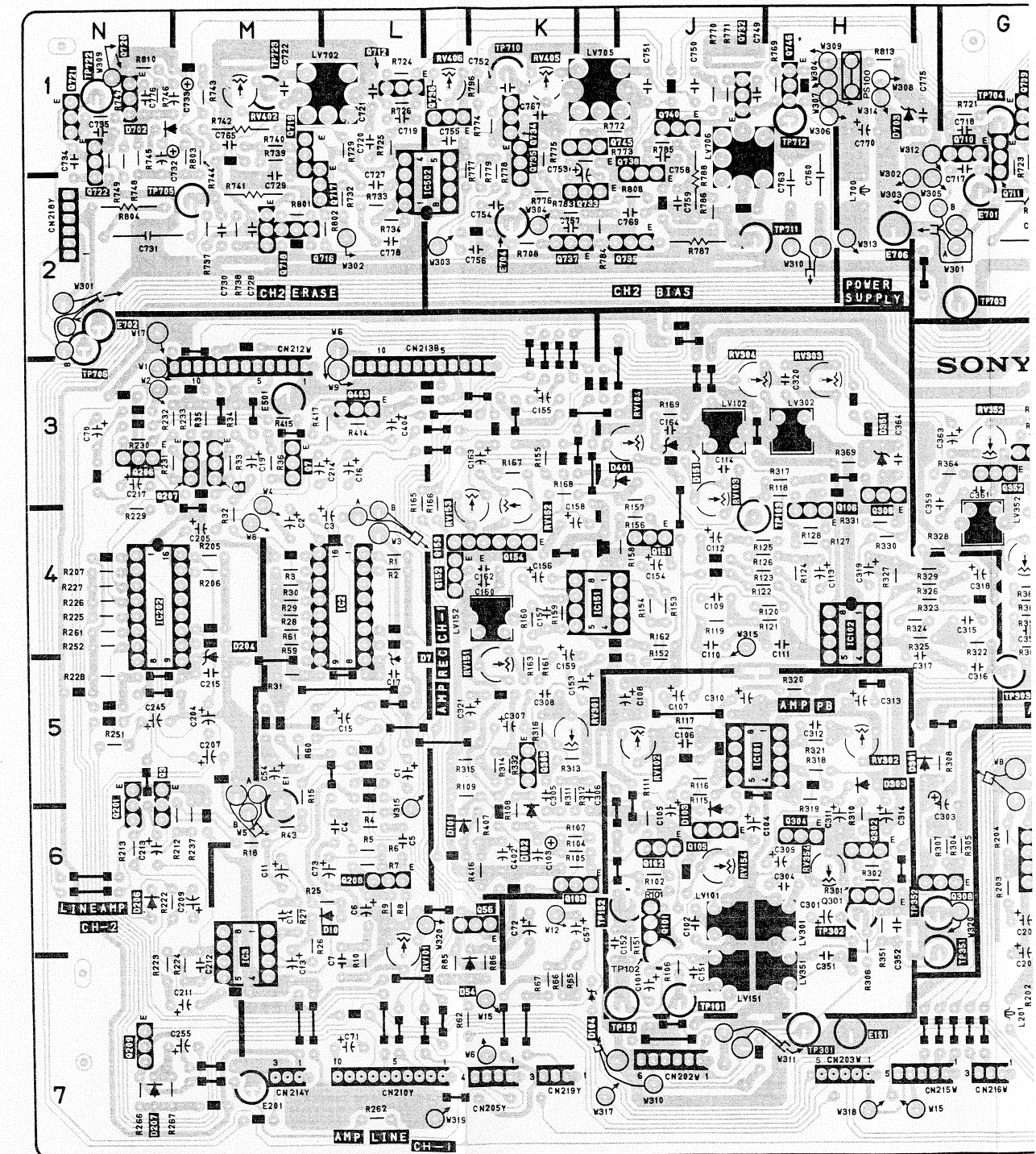
AU-124: REC/PB AMPLIFIER ERASE/BIAS OSCILLATOR

AU-124 (1-629-553-12) C

CN201	B-7	IC51	C-7	Q304	H-6	Q738	J-1
CN202	J-7	IC101	J-5	Q305	K-5	Q739	J-2
CN203	H-7	IC102	H-4	Q306	H-4	Q740	J-1
CN204	F-7	IC151	K-4	Q308	G-6	Q744	C-1
CN205	K-7	IC202	N-4	Q351	F-4	Q745	J-1
CN206	D-7	IC351	F-4	Q352	G-3	Q746	H-1
CN207	C-7	IC501	E-2	Q353	F-3		
CN208	G-7	IC502	L-2	Q354	G-3	RV1	D-3
CN209	E-7	IC503	A-2	Q401	D-5	RV51	C-5
CN210	L-7	IC504	A-2	Q402	C-5	RV101	L-7
CN212	M-2			Q403	L-3	RV102	J-5
CN213	L-2	LV101	J-6	Q451	D-4	RV103	J-3
CN214	M-7	LV102	J-3	Q452	D-5	RV104	J-3
CN215	G-7	LV151	J-7	Q501	F-6	RV151	L-5
CN216	G-7	LV152	L-4	Q502	F-6	RV152	K-4
CN217	F-2	LV301	H-6	Q503	D-5	RV153	L-4
CN218	N-2	LV302	H-3	Q601	A-4	RV154	J-6
CN219	K-7	LV351	H-7	Q602	A-4	RV201	D-3
CN222	A-1	LV352	G-4	Q605	B-3	RV251	D-5
		LV701	E-1	Q608	B-3	RV301	K-5
CP601	A-5	LV702	L-1	Q701	E-1	RV302	H-5
		LV703	C-1	Q705	F-2	RV303	H-3
D2	D-3	LV704	B-1	Q706	E-2	RV304	J-3
D5	D-3	LV705	K-1	Q707	F-2	RV351	G-4
D7	L-5	LV706	J-1	Q708	F-1	RV352	G-3
D8	F-5			Q709	G-1	RV353	F-3
D9	C-2	L1	F-7	Q710	G-1	RV354	H-6
D10	M-6	L201	G-7	Q711	G-2	RV401	F-1
D51	E-5	L700	H-2	Q712	L-1	RV402	M-1
D52	D-4			Q716	L-2	RV403	D-1
D53	D-3	Q3	N-5	Q717	L-1	RV404	D-1
D54	L-7	Q4	C-2	Q718	M-2	RV405	K-1
D101	L-6	Q5	D-2	Q719	M-1	RV406	L-1
D102	K-6	Q6	C-3	Q720	N-1	RV604	B-3
D103	J-6	Q7	M-3	Q721	N-1		
D104	K-7	Q8	M-3	Q722	N-2	X301	A-2
D151	J-3	Q51	D-6	Q723	C-1		
D201	D-3	Q52	D-5	Q724	C-2		
D202	D-3	Q53	D-7	Q725	D-1		
D204	M-4	Q54	E-6	Q726	D-2		
D205	D-2	Q55	E-7	Q727	D-1		
D206	N-6	Q56	K-6	Q728	D-2		
D207	N-7	Q101	J-6	Q729	C-2		
D251	D-6	Q102	J-6	Q730	C-2		
D301	H-5	Q103	K-6	Q731	C-1		
D302	F-5	Q105	J-6	Q732	J-1		
D303	H-5	Q106	H-4	Q733	K-2		
D351	H-3	Q151	J-4	Q734	K-1		
D401	J-3	Q152	L-4	Q735	K-1		
D451	F-3	Q153	L-4	Q736	L-1		
D501	F-6	Q154	K-4	Q737	K-2		
D504	E-4	Q201	N-6	Q725	D-1		
D505	E-4	Q202	D-2	Q727	D-1		
D506	F-6	Q203	D-2	Q728	D-2		
D507	F-6	Q204	D-3	Q729	C-1		
D508	F-3	Q206	N-3	Q730	C-2		
D701	F-1	Q207	N-3	Q731	C-1		
D702	N-1	Q208	N-6	Q732	J-1		
D703	H-1	Q209	N-7	Q733	K-2		
D704	A-1	Q251	E-6	Q734	K-1		
		Q252	D-6	Q735	K-1		
IC1	G-6	Q301	H-6	Q737	K-2		
IC2	L-4	Q302	H-6				
IC3	M-7						

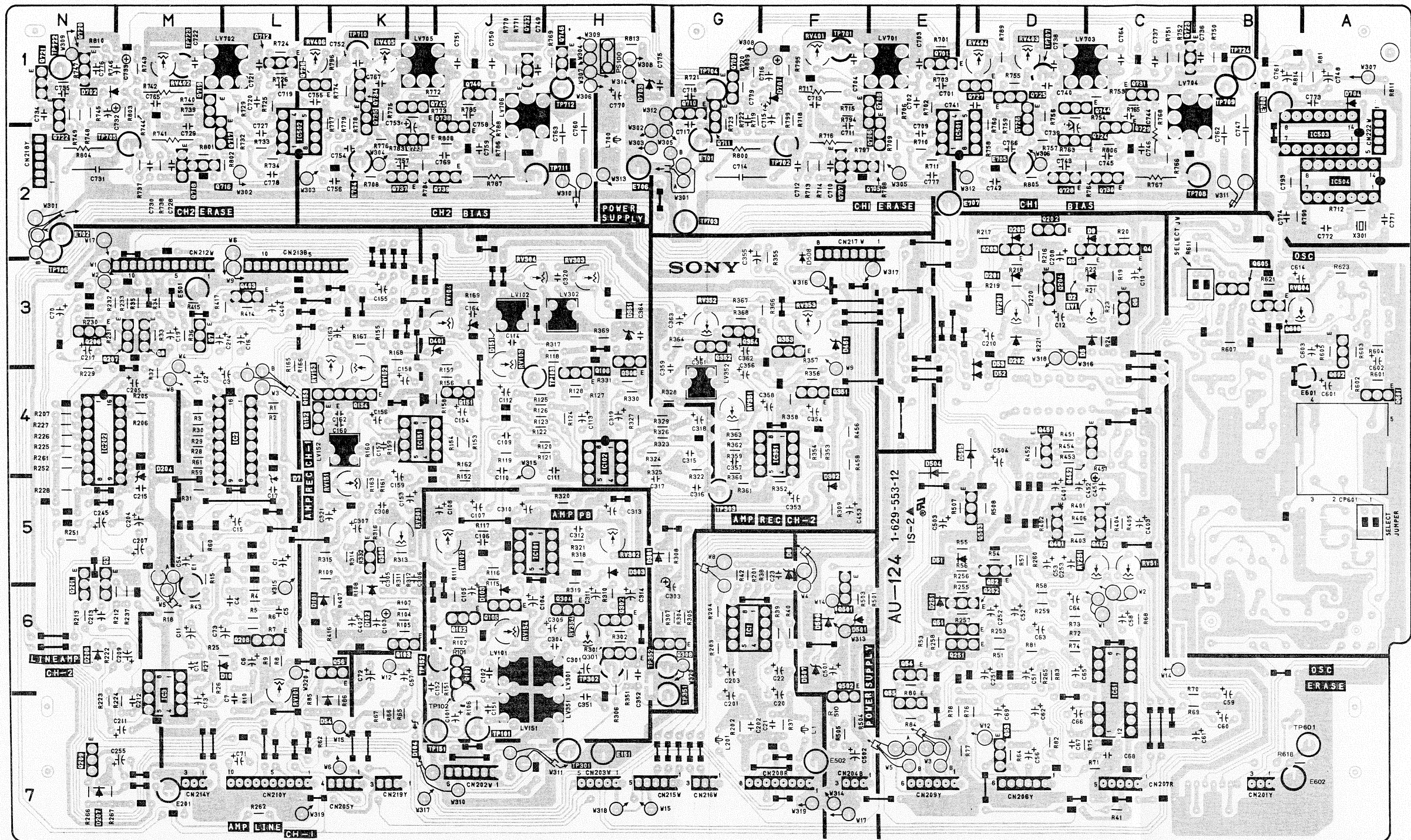
AU-124 (1-629-553-12) S

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E151	H-7
E201	M-7
E501	M-3
E502	F-7
E601	A-4
E602	A-7
E701	G-2
E702	N-2
E704	K-2
E705	D-2
E706	H-2
E707	E-2
E708	B-1
TP101	J-7
TP102	J-7
TP103	H-4
TP151	K-7
TP152	K-6
TP301	H-7
TP302	H-6
TP303	G-5
TP351	G-6
TP352	H-6
TP601	A-7
TP701	F-1
TP702	F-2
TP703	G-2
TP704	G-1
TP705	N-2
TP706	N-3
TP707	D-1
TP708	B-2
TP709	B-1
TP710	K-1
TP711	H-2
TP712	H-1
TP722	N-1
TP723	M-1
TP724	B-1

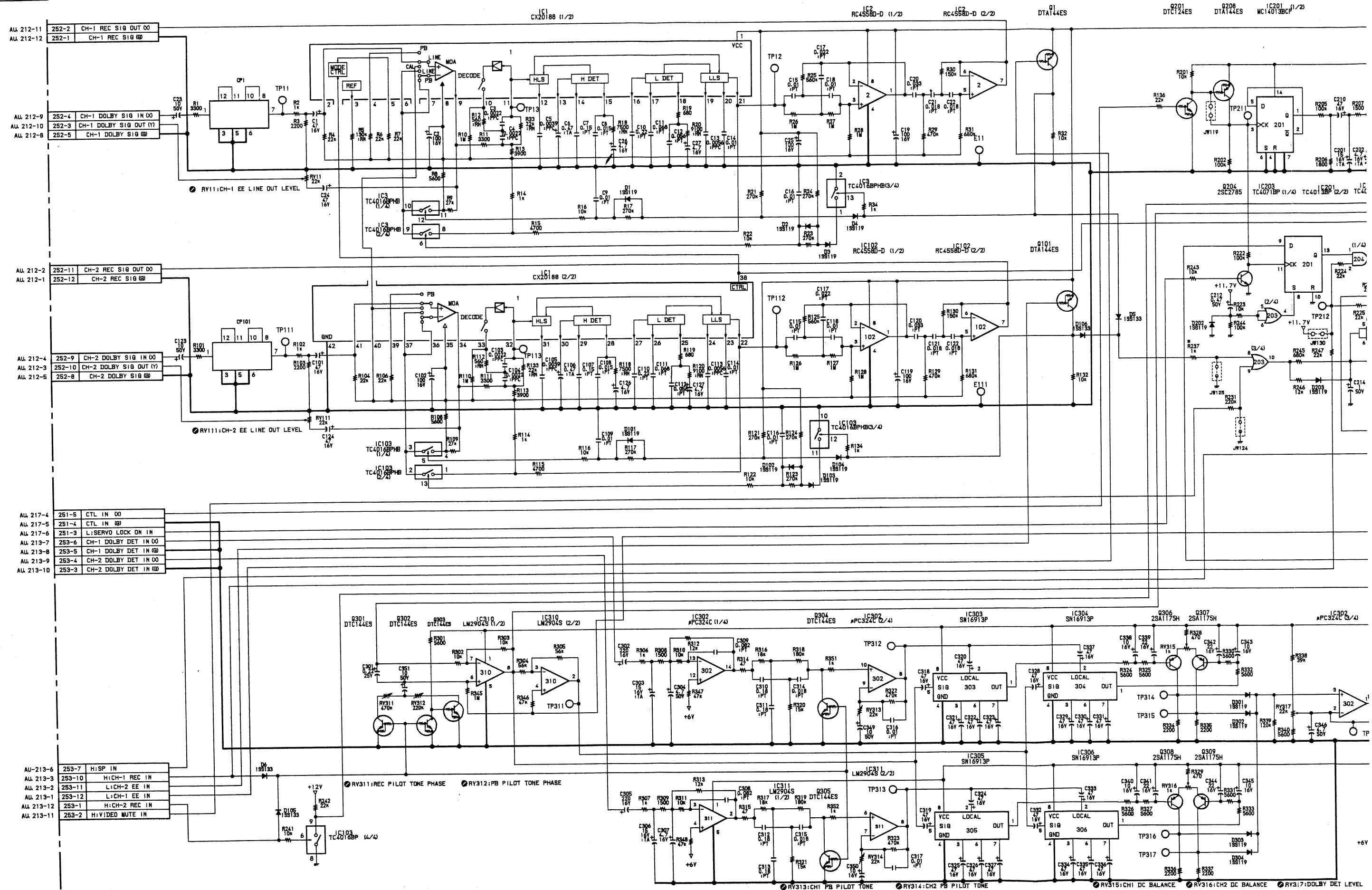


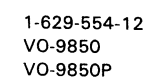
-629-553-12) S

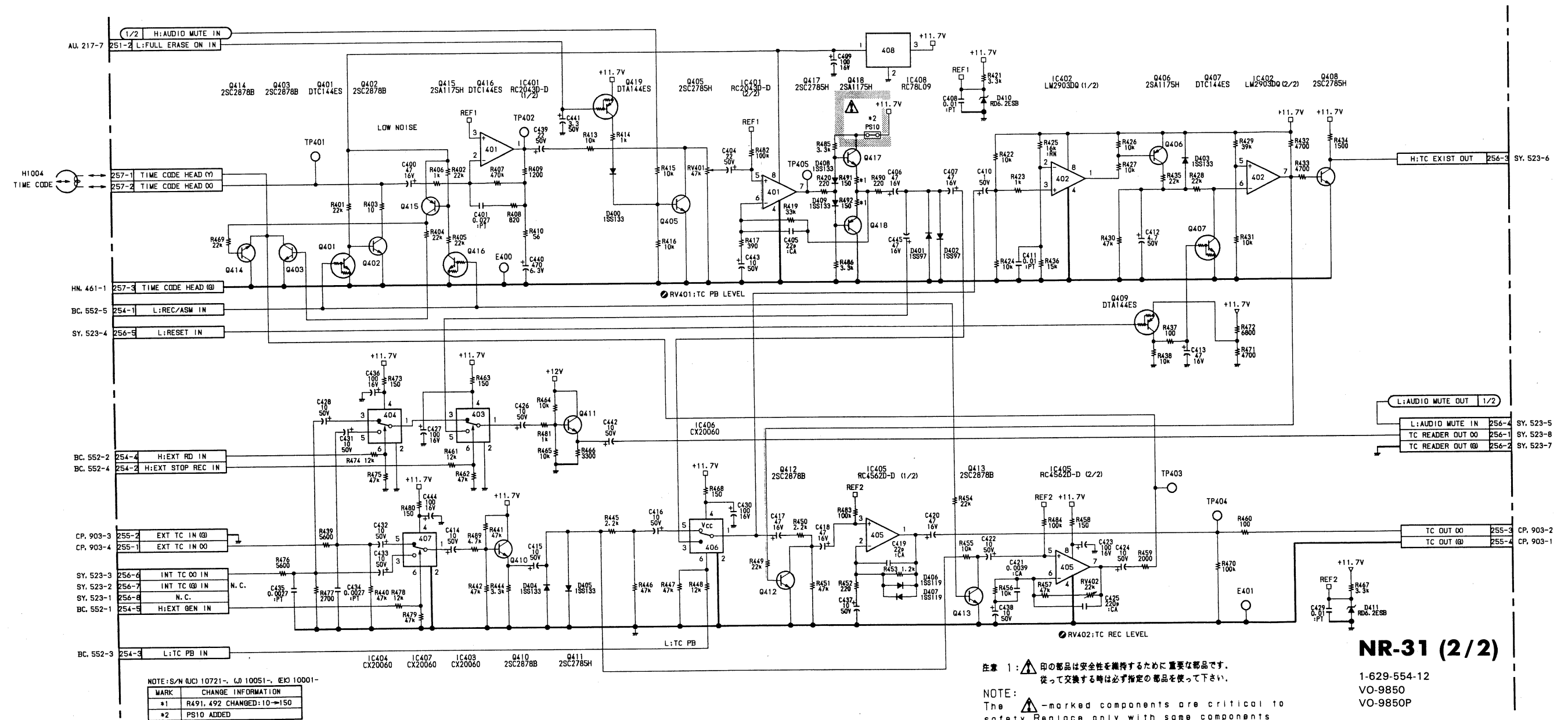
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-1

**AU-124**

— SOLDERING SIDE —
1-629-553-12
VO-9850
VO-9850P





NR-31 (2/2): TC REC/PB AMPLIFIER

注意 1:  印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の部品を使って下さい。

NOTE:
The  -marked components are critical to safety. Replace only with same components as specified.

NR-31 (2/2)

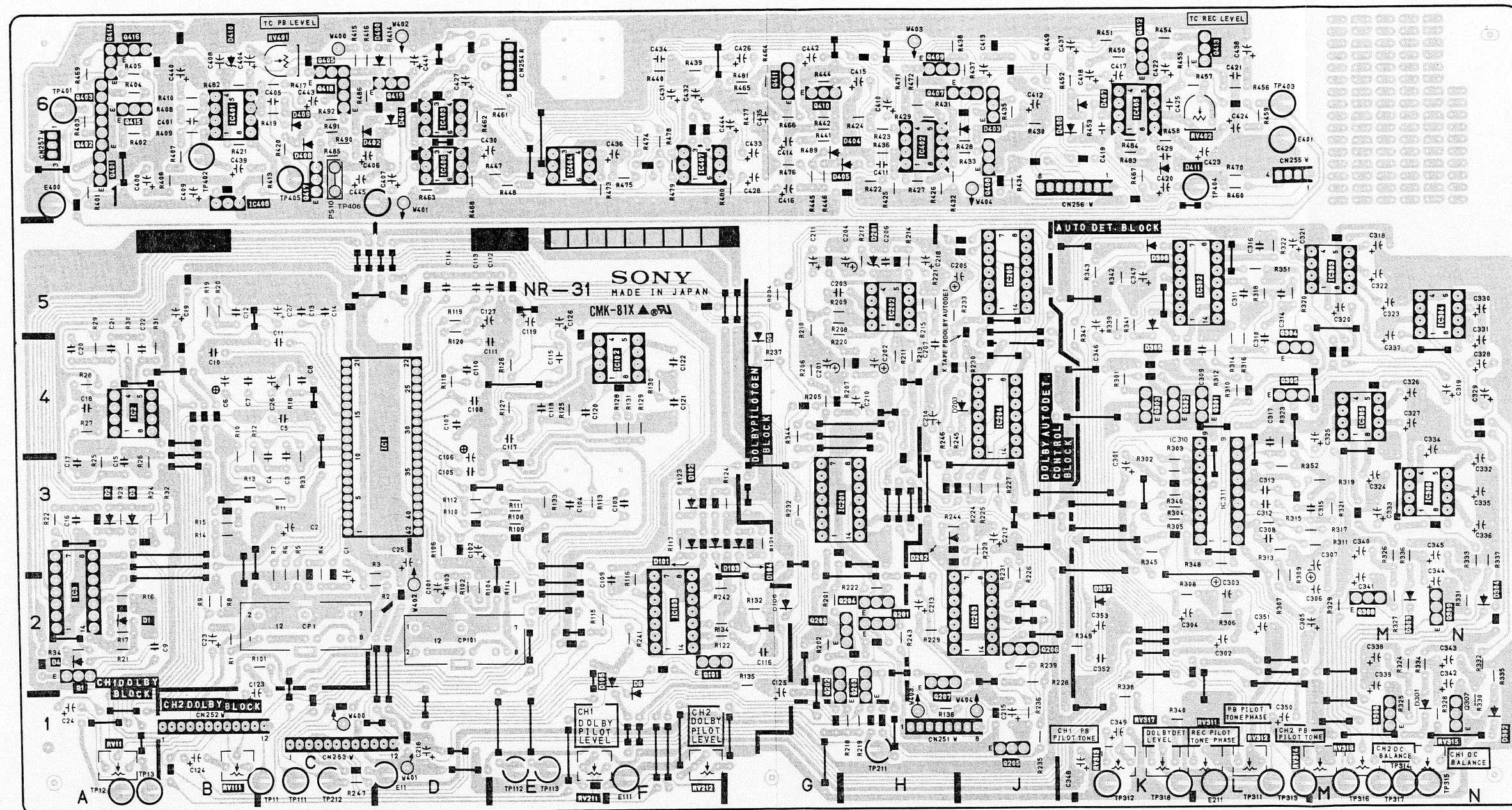
1-629-554-12
VO-9850
VO-9850P

NR-31: DOLBY NR, NR PILOT REC/DET, TC REC/PB AMPLIFIER

NR-31 (1-629-554-12) C

NR-31 (1-629-554-12) S

CN251	H-1	IC403	D-6	D6	F-1
CN252	B-1	IC404	E-6		
CN253	C-1	IC405	K-6	E11	D-1
CN254	E-6	IC406	D-6	E111	F-1
CN255	L-6	IC407	F-6	E211	L-1
CN256	K-6	IC408	C-6	E400	A-6
CN257	A-6			E401	L-6
		Q1	A-2		
CP1	C-2	Q101	F-2	TP11	C-1
CP101	D-2	Q201	H-2	TP12	A-1
		Q202	G-2	TP13	A-1
D1	A-2	Q203	H-2	TP111	C-1
D2	A-3	Q204	H-2	TP112	E-1
D3	A-3	Q205	J-1	TP113	E-1
D4	A-2	Q206	J-2	TP211	H-1
D5	G-4	Q207	H-1	TP212	C-1
D101	F-3	Q208	H-2	TP311	L-1
D102	F-3	Q301	L-4	TP312	K-1
D103	F-3	Q302	K-4	TP313	L-1
D104	G-3	Q303	K-4	TP314	M-1
D105	E-2	Q304	L-4	TP315	N-1
D106	G-2	Q305	L-4	TP316	M-1
D201	H-5	Q306	M-1	TP317	M-1
D202	H-3	Q307	N-1	TP318	K-1
D203	J-4	Q308	M-2	TP401	A-6
D301	M-1	Q309	N-2	TP402	B-6
D302	N-1	Q401	A-6	TP403	L-6
D303	M-2	Q402	A-6	TP404	L-6
D304	N-2	Q403	A-6	TP405	C-6
D305	K-5	Q405	C-6	TP406	C-6
D306	K-5	Q406	J-6		
D307	K-2	Q407	H-6		
D400	D-6	Q408	J-6		
D401	D-6	Q409	H-6		
D402	D-6	Q410	G-6		
D403	J-6	Q411	G-6		
D404	H-6	Q412	K-6		
D405	H-6	Q413	L-6		
D406	J-6	Q414	A-6		
D407	K-6	Q415	A-6		
D408	C-6	Q416	A-6		
D409	C-6	Q417	C-6		
D410	B-6	Q418	C-6		
D411	K-6	Q419	D-6		
IC1	D-4	RV11	A-1		
IC2	A-4	RV111	B-1		
IC3	A-2	RV211	E-1		
IC102	F-4	RV212	F-1		
IC103	F-2	RV311	L-1		
IC201	H-3	RV312	L-1		
IC202	H-5	RV313	K-1		
IC203	J-2	RV314	M-1		
IC204	J-4	RV315	N-1		
IC205	J-5	RV316	M-1		
IC302	L-5	RV317	K-1		
IC303	M-5	RV401	C-6		
IC304	N-5	RV402	L-6		
IC305	M-4				
IC306	N-3				
IC310	K-4				
IC311	L-3				
IC401	B-6				
IC402	H-6				



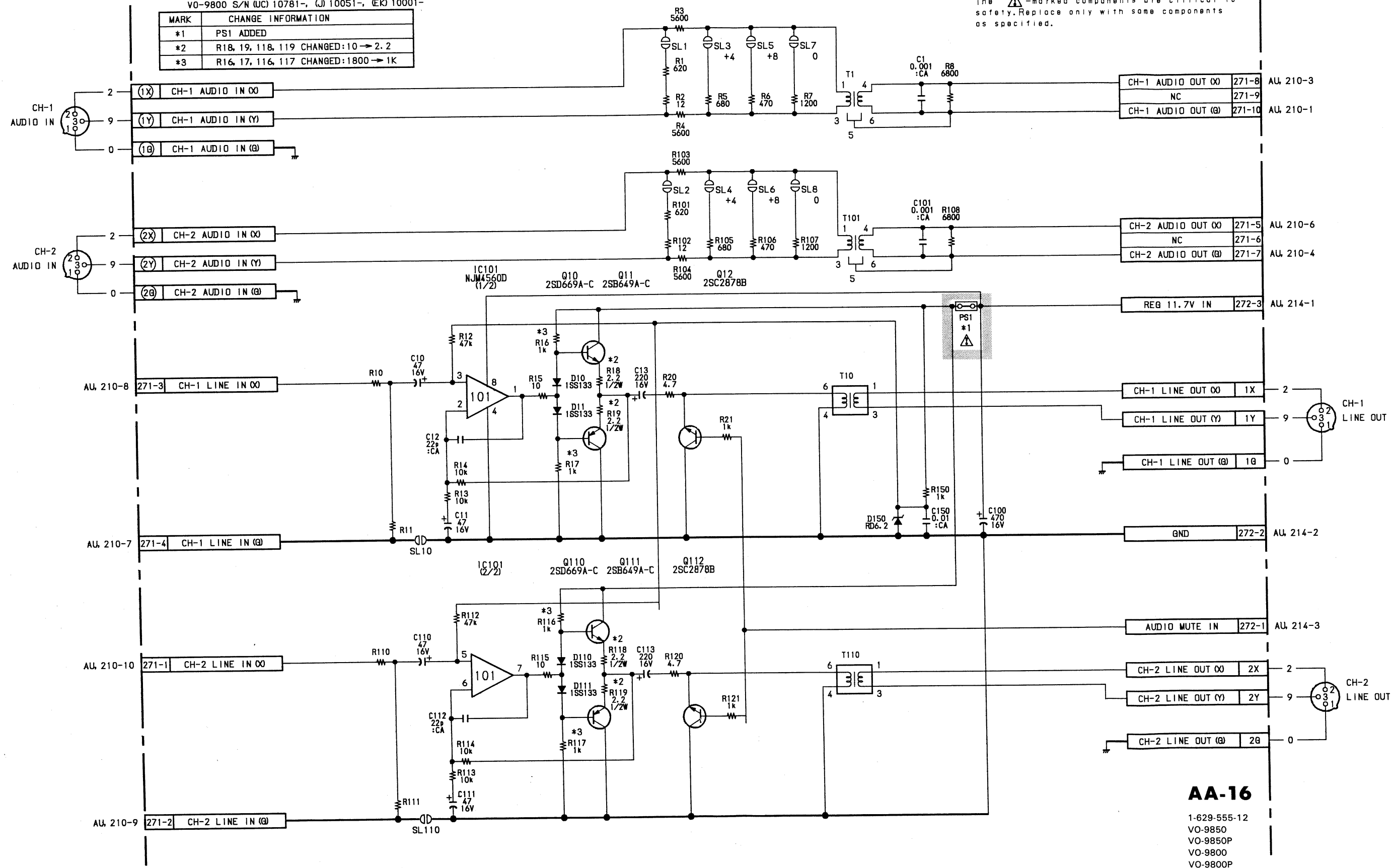
NR-31

—SOLDERING SIDE—
 1-629-554-12
 VO-9850
 VO-9850P

AA-16: CONNECTOR

NOTE: VO-9850 S/N (U) 10721-, (J) 10051-, (K) 10001-
VO-9800 S/N (U) 10781-, (J) 10051-, (K) 10001-

MARK	CHANGE INFORMATION
*1	PS1 ADDED
*2	R18, 19, 118, 119 CHANGED: 10 → 2.2
*3	R16, 17, 116, 117 CHANGED: 1800 → 1K



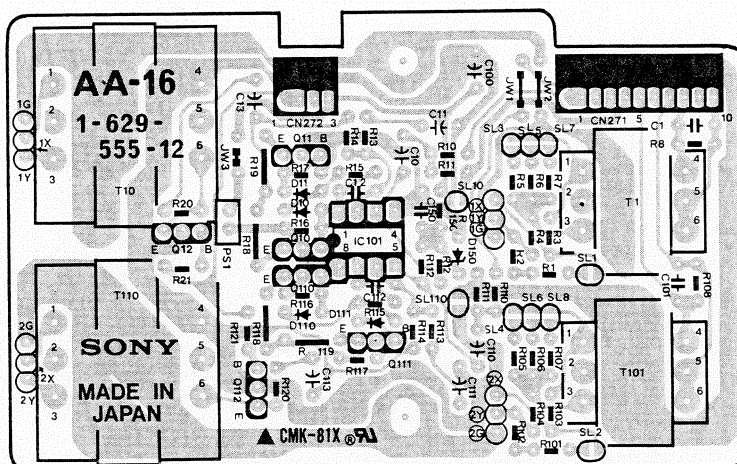
注意 1: ⚠ 印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の部品を使って下さい。

NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

AA-16

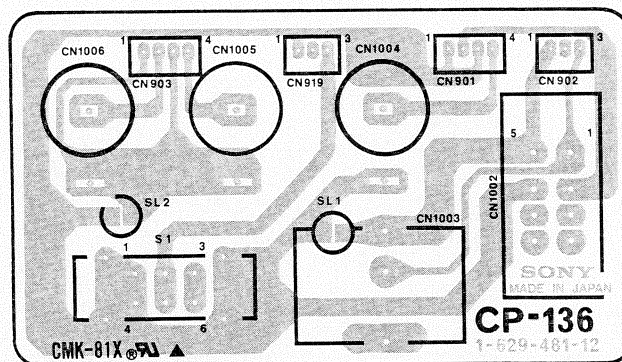
1-629-555-12
VO-9850
VO-9850P
VO-9800
VO-9800P

AA-16: CONNECTOR
CP-136: MONITOR OUT, EXT IN/OUT



AA-16

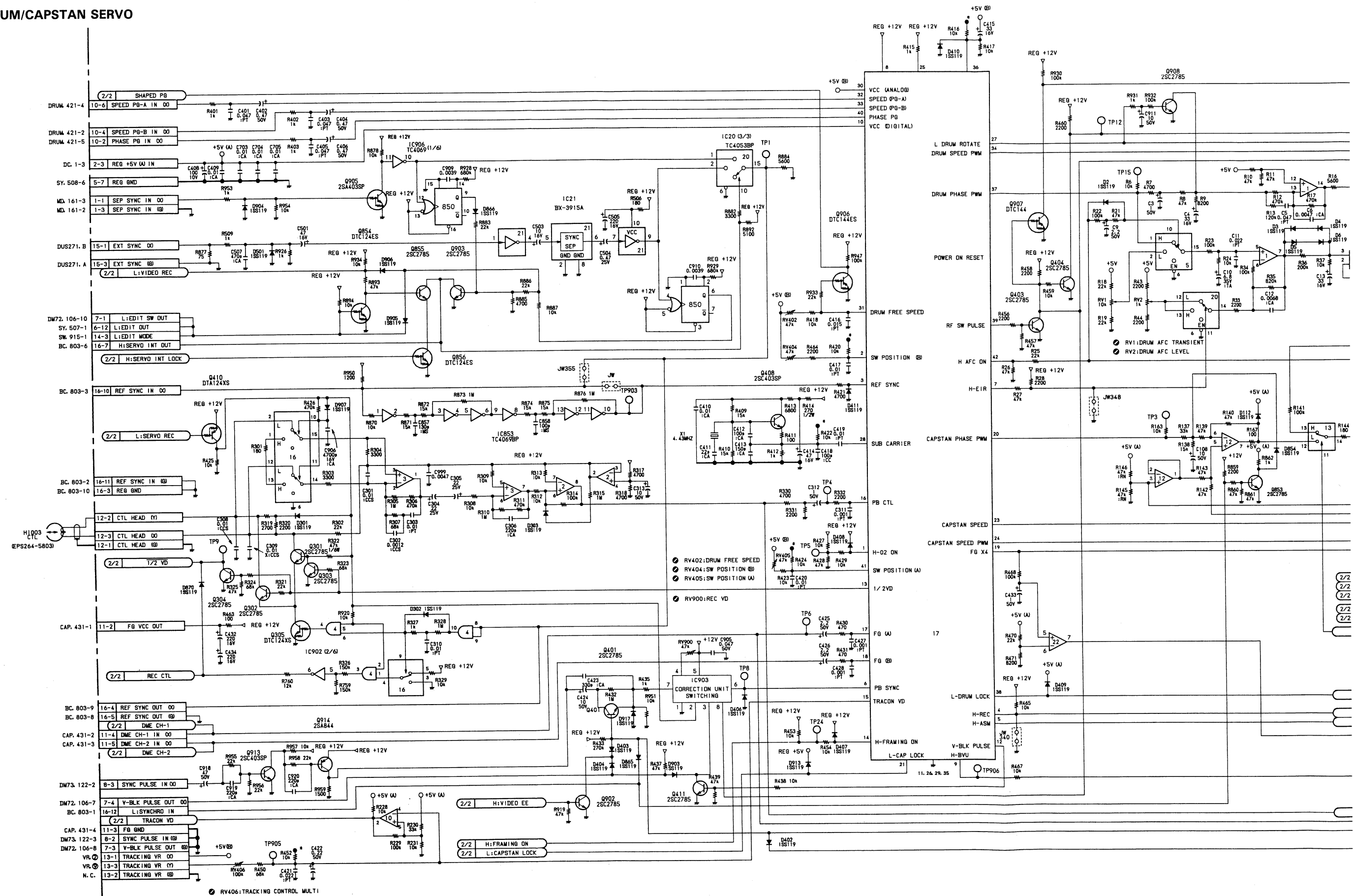
— SOLDERING SIDE —
1-629-555-12
VO-9850
VO-9850P
VO-9800
VO-9800P



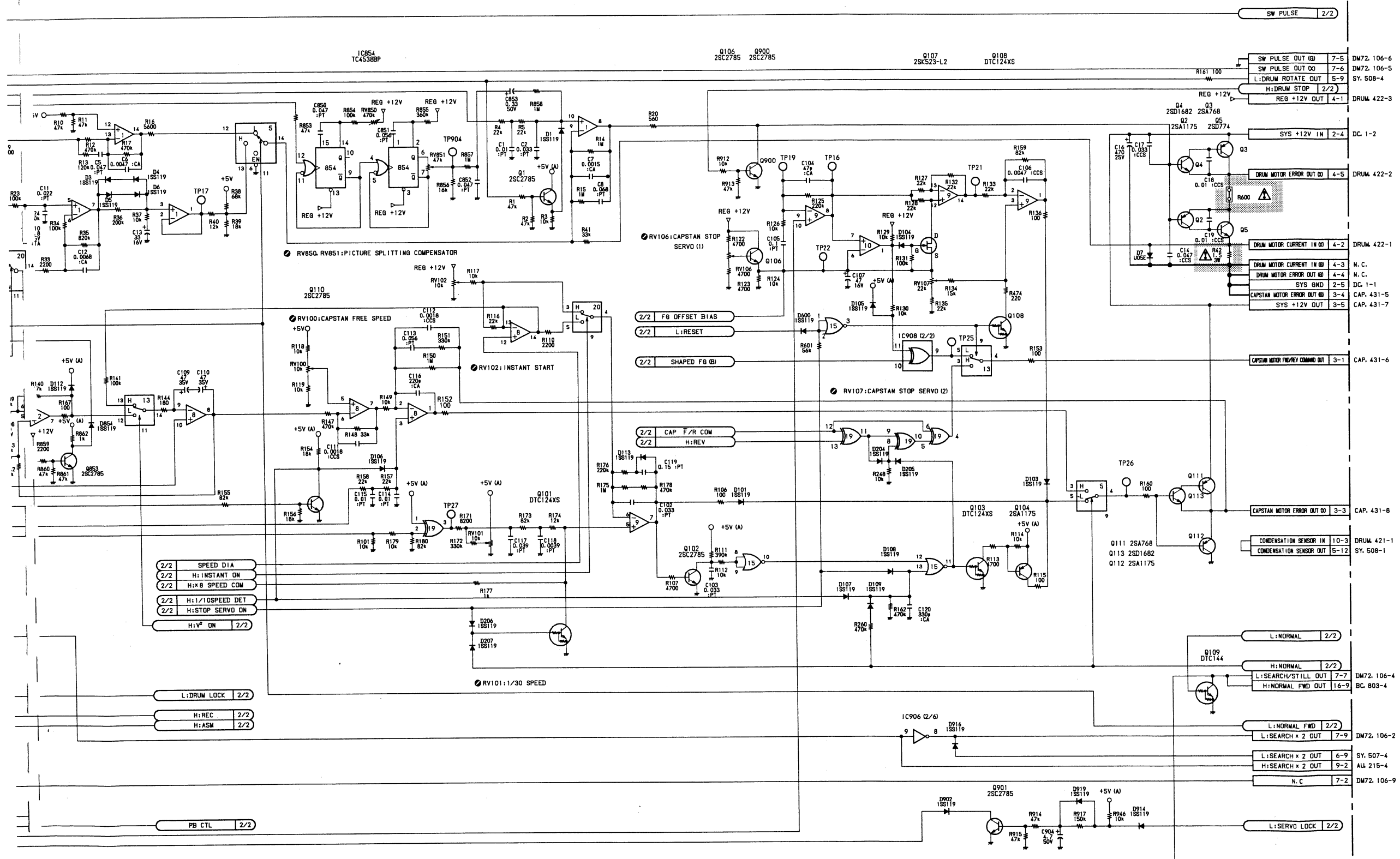
CP-136

— SOLDERING SIDE —
1-629-481-12
VO-9850
VO-9850P
VO-9800
VO-9800P

SV-112B (1/2): DRUM/CAPSTAN SERVO



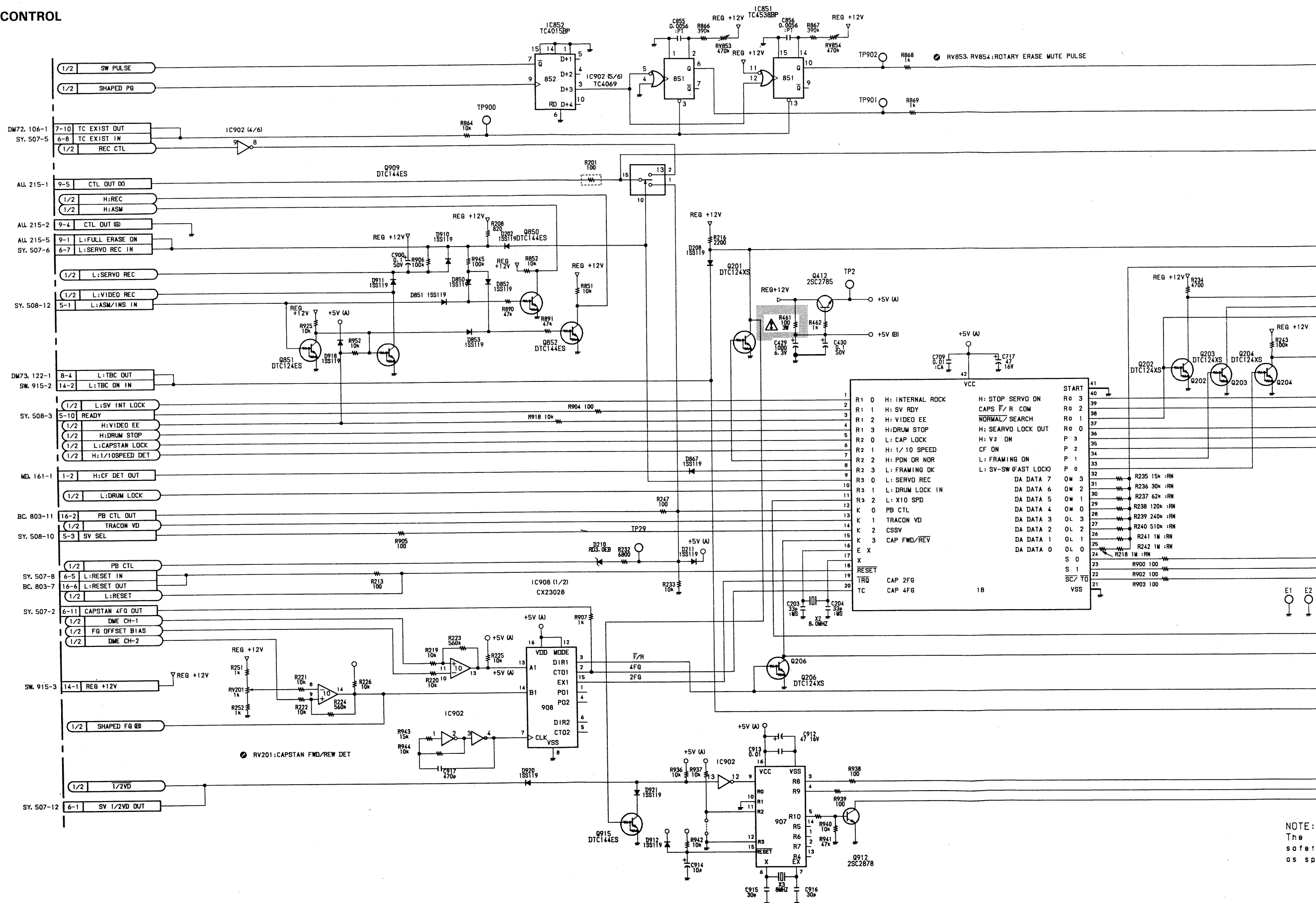
NOTE:
The Δ -marked components are critical to safety. Replace only with same components as specified.

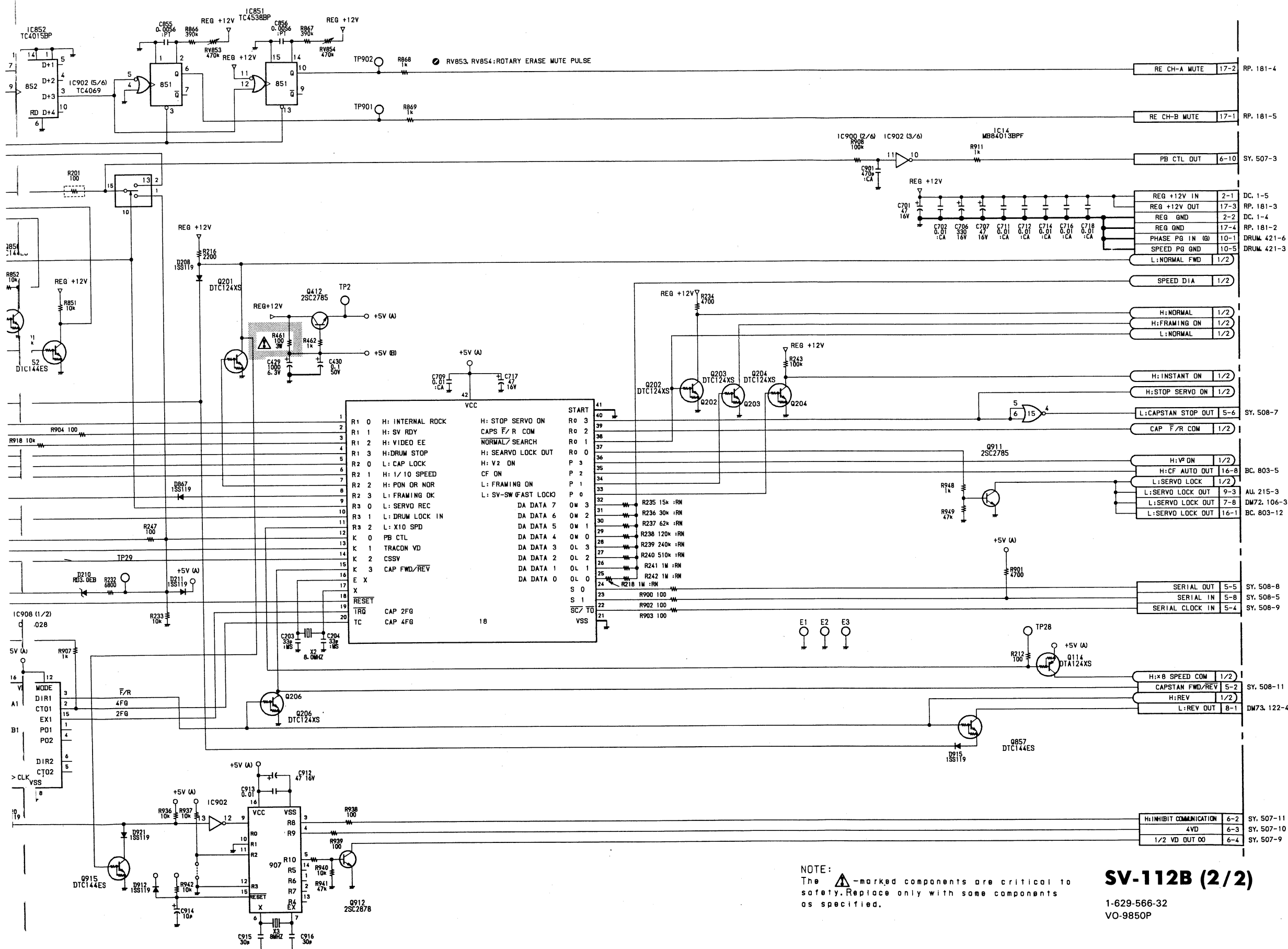


SV-112B (1/2)

1-629-566-32
VO-9850P

SV-112B (2/2): SERVO CONTROL





NOTE:
The Δ -marked components are critical to safety. Replace only with same components as specified.

SV-112B (2/2)

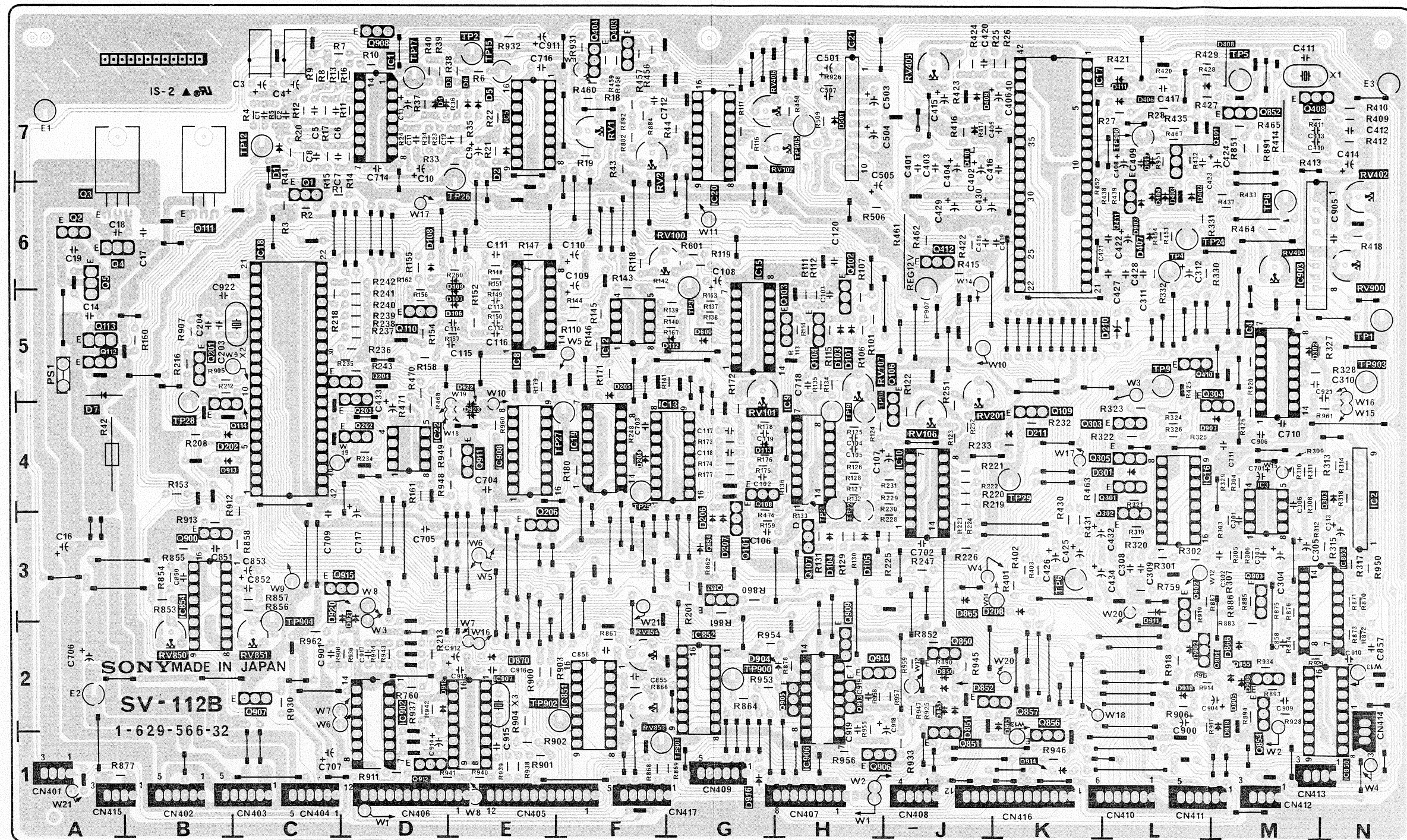
1-629-566-32
VO-9850P

SV-112B: DRUM/CAPSTAN SERVO CONTROL

SV-112B (1-629-566-32) C

SV-112B (1-629-566-32) S

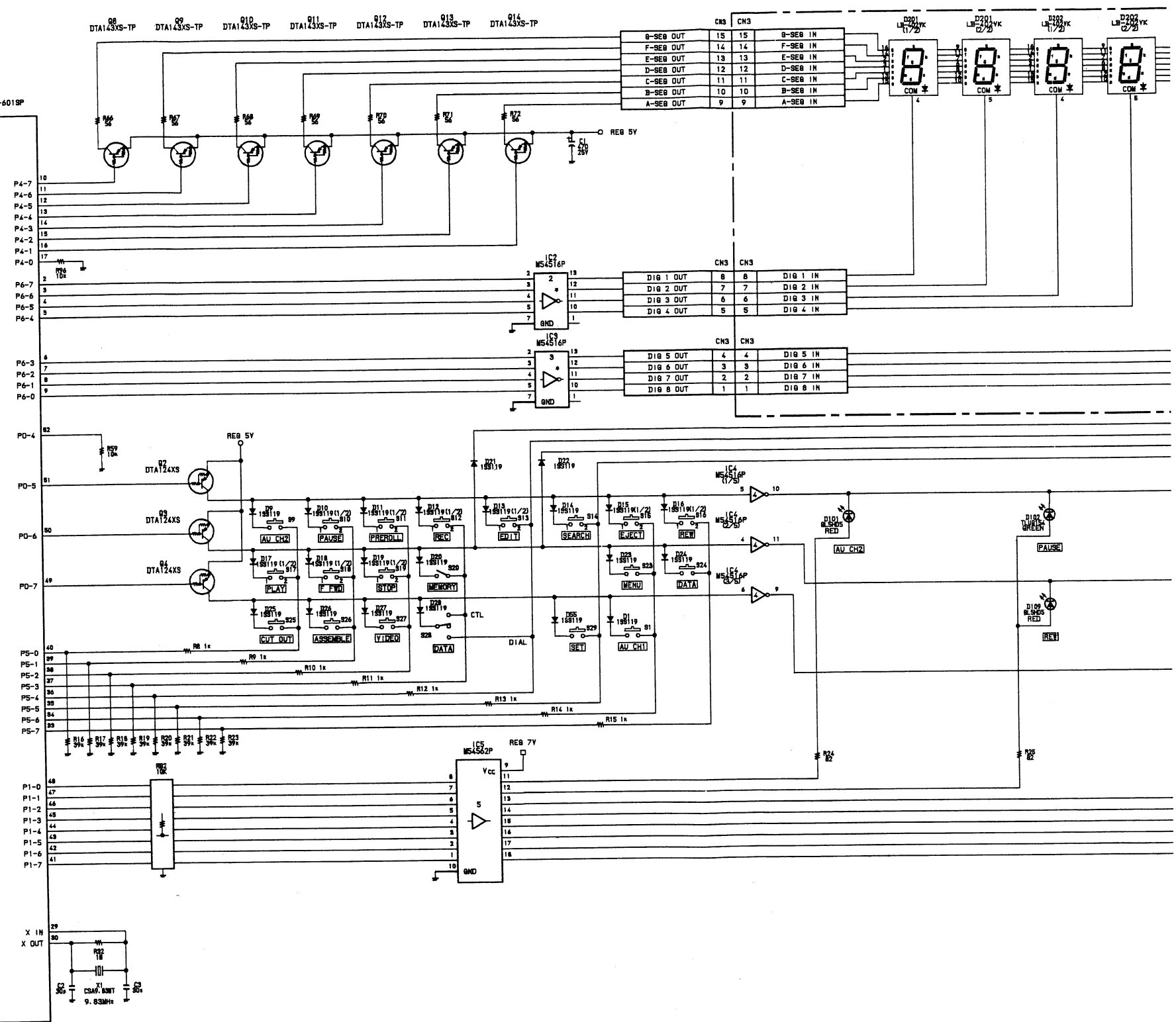
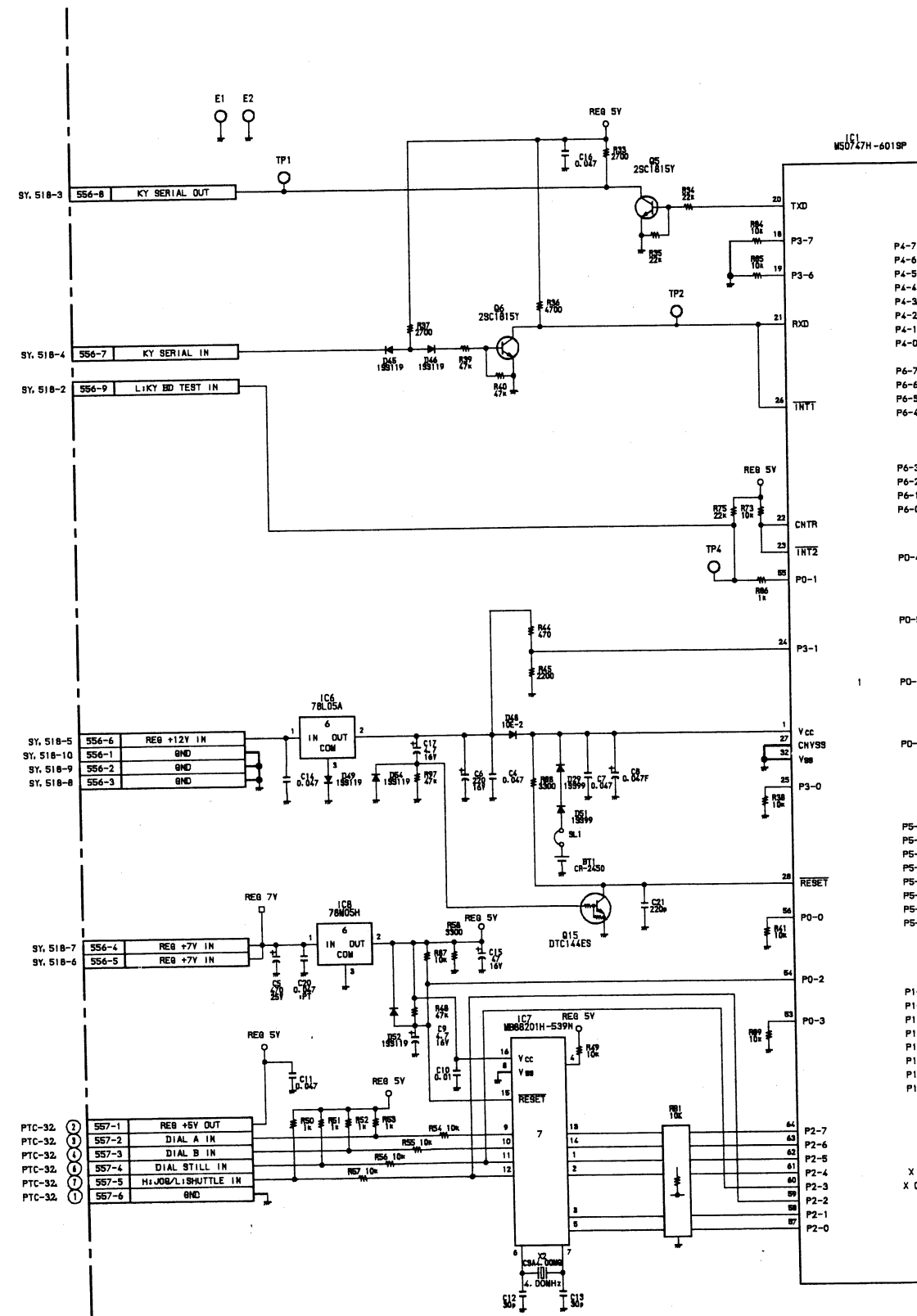
CN401	A-1	D866	M-2	Q106	J-5	RV853	F-2	E1	A-7
CN402	B-1	D870	E-2	Q107	H-3	RV854	F-2	E2	A-2
CN403	C-1	D902	L-2	Q108	G-4	RV900	N-6	E3	N-7
CN404	C-1	D903	L-6	Q109	K-4				
CN405	E-1	D904	G-2	Q110	D-5	X1	N-7	TP1	N-5
CN406	D-1	D905	M-2	Q111	B-6	X2	C-5	TP2	E-7
CN407	H-1	D906	M-2	Q112	A-5	X3	E-2	TP3	G-5
CN408	J-1	D907	M-4	Q113	A-5			TP4	L-6
CN409	G-1	D910	L-2	Q114	C-4			TP5	M-7
CN410	L-1	D911	L-3	Q201	B-5			TP6	K-3
CN411	L-1	D912	D-2	Q202	D-4			TP8	M-6
CN412	M-1	D913	B-4	Q203	D-4			TP9	L-5
CN413	M-1	D914	K-1	Q204	D-5			TP12	C-7
CN414	N-2	D915	K-2	Q206	F-3			TP15	E-7
CN415	A-1	D916	G-1	Q301	L-4			TP16	H-5
CN416	K-1	D917	L-7	Q302	L-4			TP17	D-7
CN417	G-1	D918	H-2	Q303	L-4			TP19	H-4
		D919	M-2	Q304	L-5			TP21	H-4
D1	C-7	D920	D-2	Q305	L-4			TP22	H-4
D2	E-7	D921	C-2	Q401	L-7			TP24	L-6
D3	D-7	D922	E-5	Q403	F-7			TP25	F-4
D4	D-7	D923	E-4	Q404	F-7			TP26	E-6
D5	E-7			Q408	M-7			TP27	F-4
D6	E-7	IC1	D-7	Q410	L-5			TP28	B-4
D7	A-4	IC2	N-4	Q411	L-6			TP29	K-4
D101	H-5	IC3	M-4	Q412	J-6			TP900	G-2
D103	H-5	IC4	M-5	Q850	J-2			TP901	G-1
D104	H-3	IC5	E-7	Q851	J-1			TP902	E-2
D105	H-3	IC8	F-5	Q852	M-7			TP903	N-5
D106	E-5	IC9	H-4	Q853	G-3			TP904	C-3
D107	E-5	IC10	J-3	Q854	M-1			TP905	H-7
D108	D-6	IC12	F-5	Q855	M-2			TP906	J-5
D109	E-6	IC13	G-4	Q856	K-2			TP907	J-5
D112	G-5	IC15	G-6	Q857	K-2				
D113	G-4	IC16	L-4	Q900	B-3				
D202	B-4	IC17	K-7	Q901	M-2				
D204	F-4	IC18	C-4	Q902	L-3				
D205	F-5	IC19	F-4	Q903	M-3				
D206	G-3	IC20	G-6	Q905	H-2				
D207	G-3	IC21	H-7	Q906	H-1				
D208	K-3	IC22	D-4	Q907	C-2				
D210	L-5	IC850	M-1	Q908	D-7				
D211	K-4	IC851	F-2	Q909	H-3				
D301	L-4	IC852	G-2	Q911	E-4				
D302	M-5	IC853	M-2	Q912	D-1				
D303	N-4	IC854	B-3	Q913	H-2				
D402	L-6	IC902	D-1	Q914	H-2				
D403	L-6	IC903	M-6	Q915	D-3				
D404	L-6	IC906	H-2						
D406	L-7	IC907	E-2	RV1	F-7				
D407	L-6	IC908	E-4	RV2	G-7				
D408	L-7			RV100	G-6				
D409	J-7	PS1	A-5	RV101	G-4				
D410	J-7			RV102	H-7				
D411	L-7	Q1	C-7	RV106	J-4				
D501	H-7	Q2	A-6	RV107	H-5				
D600	G-5	Q3	A-6	RV201	J-5				
D850	J-2	Q4	A-6	RV402	N-7				
D851	J-2	Q5	A-6	RV404	M-6				
D852	J-2	Q101	G-3	RV405	J-7				
D853	J-2	Q102	H-6	RV406	G-7				
D854	G-3	Q103	H-5	RV850	B-2				
D865	J-3	Q104	H-5	RV851	C-2				

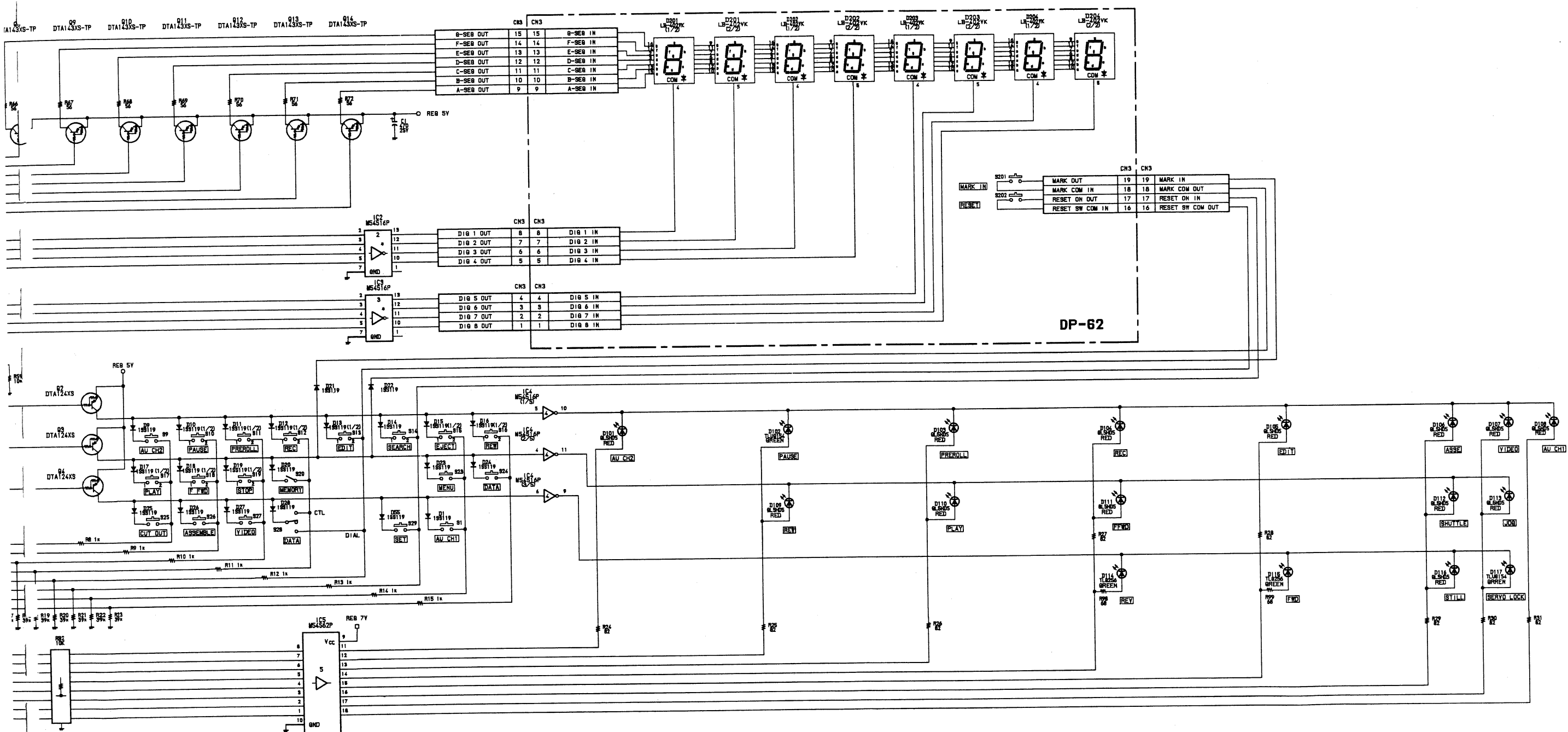


SV-112B

—SOLDERING SIDE—
1-629-566-32
VO-9850P

KY-159: FUNCTION KEY BOARD





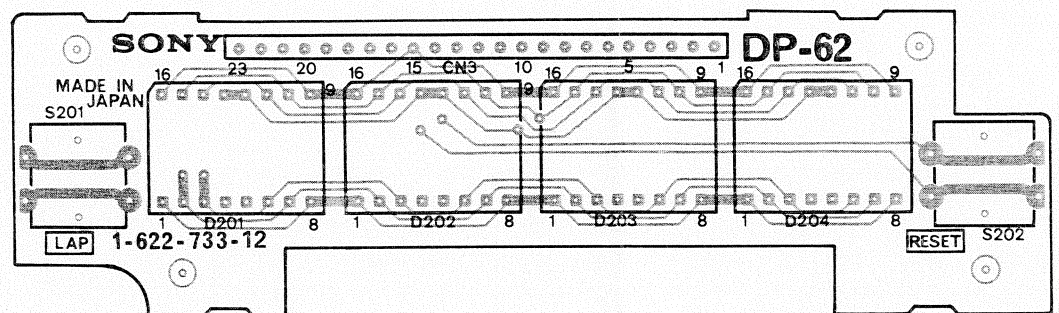
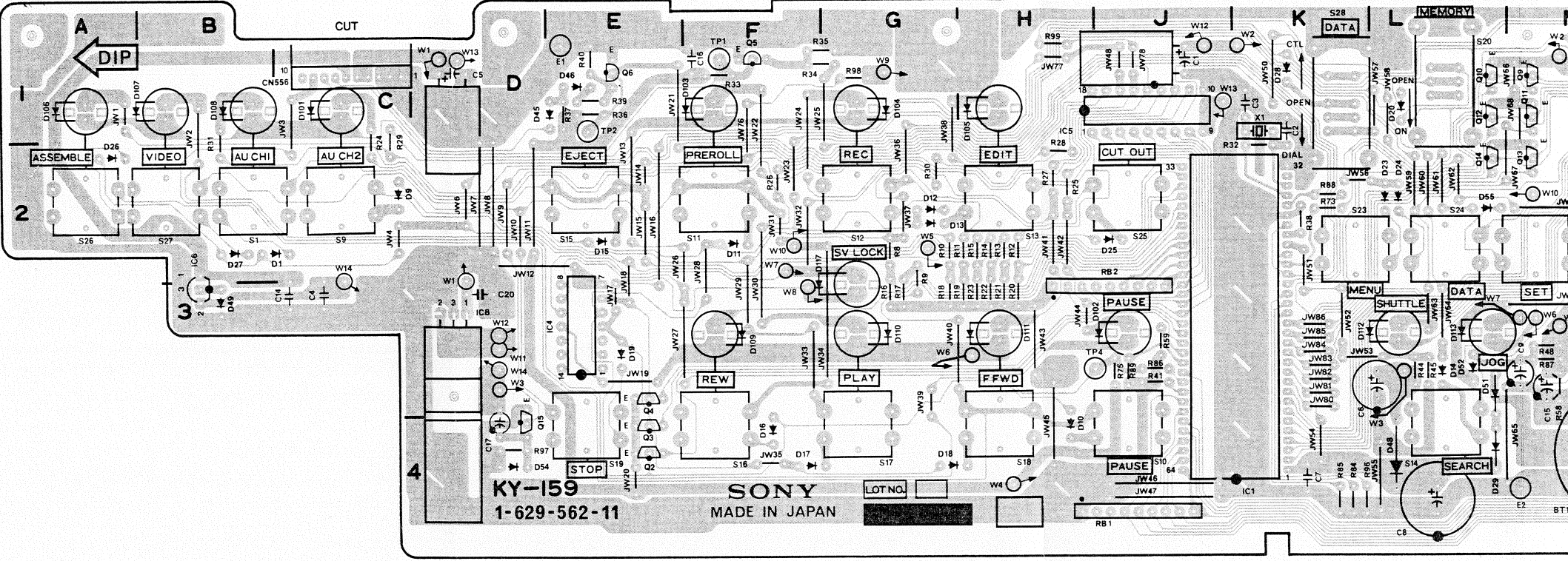
KY-159

1-629-562-11
VO-9850
VO-9850P

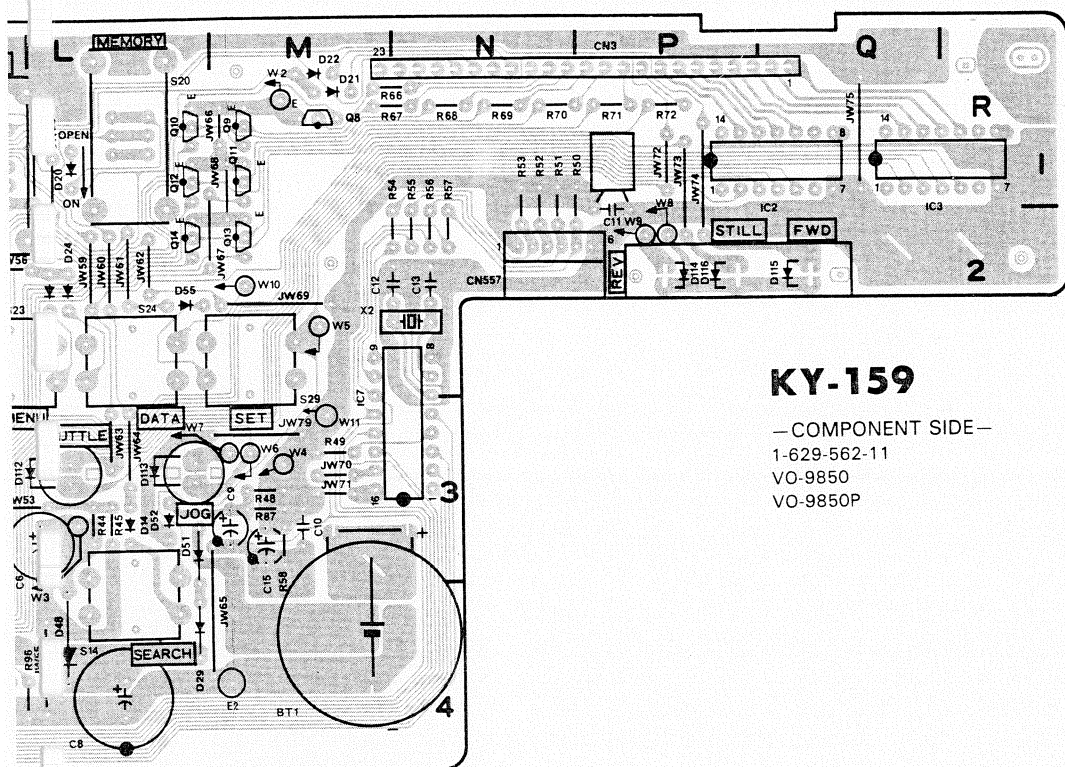
KY-159: FUNCTION KEY BOARD
DP-62: DISPLAY

KY-159 (1-629-562-11) C

CN3	P-1	IC6	B-3
CN556	C-1	IC7	M-3
CN557	N-2	IC8	D-3
D1	B-1	Q2	E-4
D9	C-2	Q3	E-4
D10	H-4	Q4	E-3
D11	F-2	Q5	F-1
D12	G-2	Q6	E-1
D13	G-2	Q8	M-1
D14	L-3	Q9	M-1
D15	E-2	Q10	L-1
D16	F-4	Q11	M-1
D17	F-4	Q12	L-1
D18	G-4	Q13	M-2
D19	E-3	Q14	L-2
D20	L-1	Q15	D-4
D21	M-1		
D22	M-1	RB1	J-4
D23	L-2	RB2	J-2
D24	L-2		
D25	J-2	S1	B-2
D26	A-2	S9	C-2
D27	B-2	S10	J-4
D28	K-1	S11	F-2
D29	L-4	S12	G-2
D45	E-1	S13	H-2
D46	E-1	S14	L-4
D48	L-4	S15	E-2
D49	B-3	S16	F-4
D51	L-3	S17	G-4
D52	L-3	S18	H-4
D54	D-4	S19	E-4
D55	L-2	S20	L-1
D101	C-1	S23	K-2
D102	J-3	S24	L-2
D103	F-1	S25	J-2
D104	G-1	S26	A-2
D105	H-1	S27	B-2
D106	A-1	S28	K-1
D107	B-1	S29	M-2
D108	B-1	S201	S-1
D109	F-3	S202	T-1
D110	G-3		
D111	H-3	TP1	F-1
D112	L-3	TP2	E-1
D113	L-3	TP4	H-3
D114	P-2		
D115	Q-2	X1	K-1
D116	P-2	X2	M-2
D117	G-3		
D201	S-1		
D202	S-1		
D203	T-1		
D204	T-1		
E1	E-1		
E2	M-4		
IC1	K-4		
IC2	Q-1		
IC3	Q-1		
IC4	E-3		
IC5	H-1		

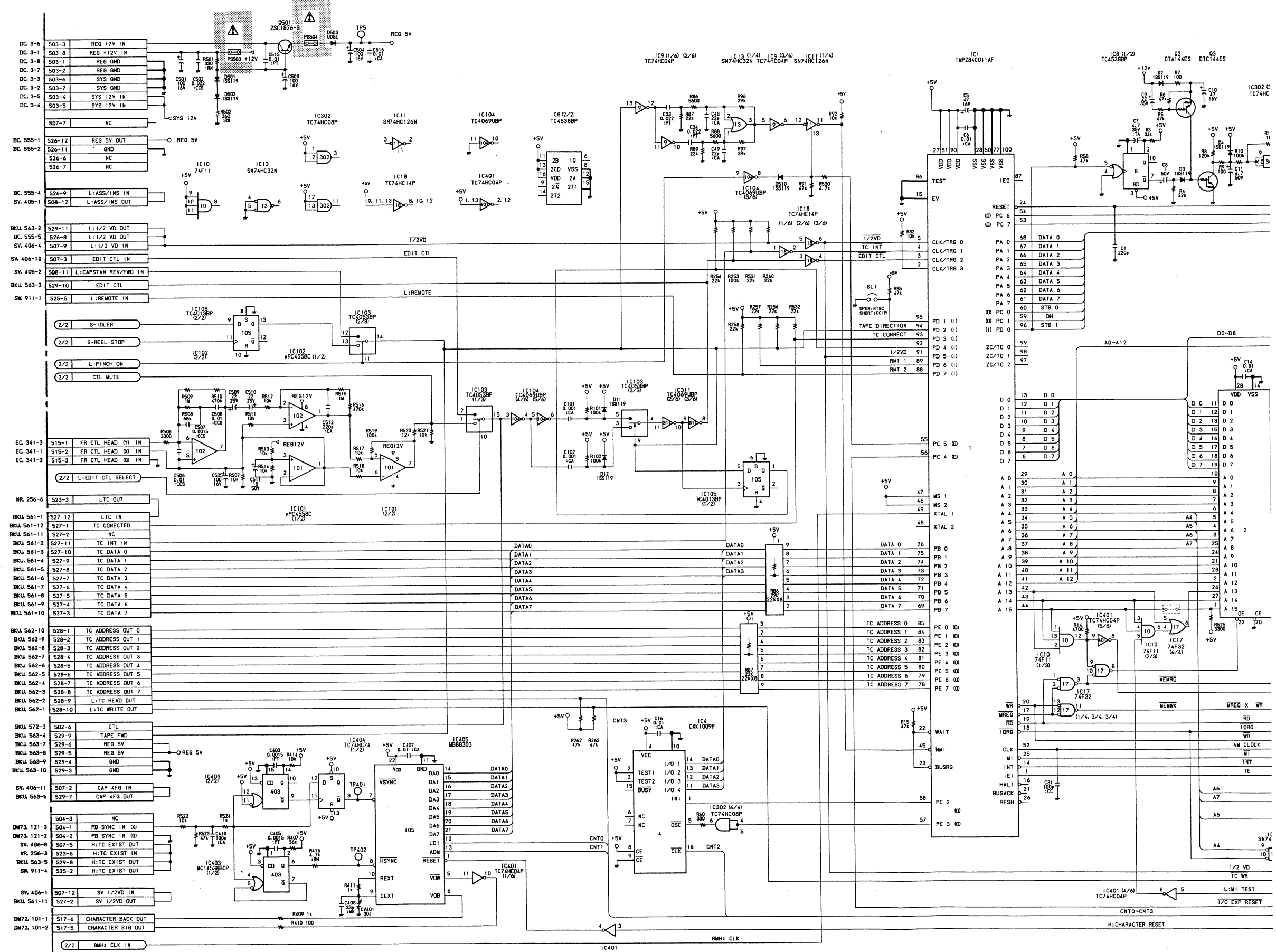


DP-62
— COMPONENT SIDE —
1-622-733-12
VO-9850
VO-9850P
VO-9800
VO-9800P

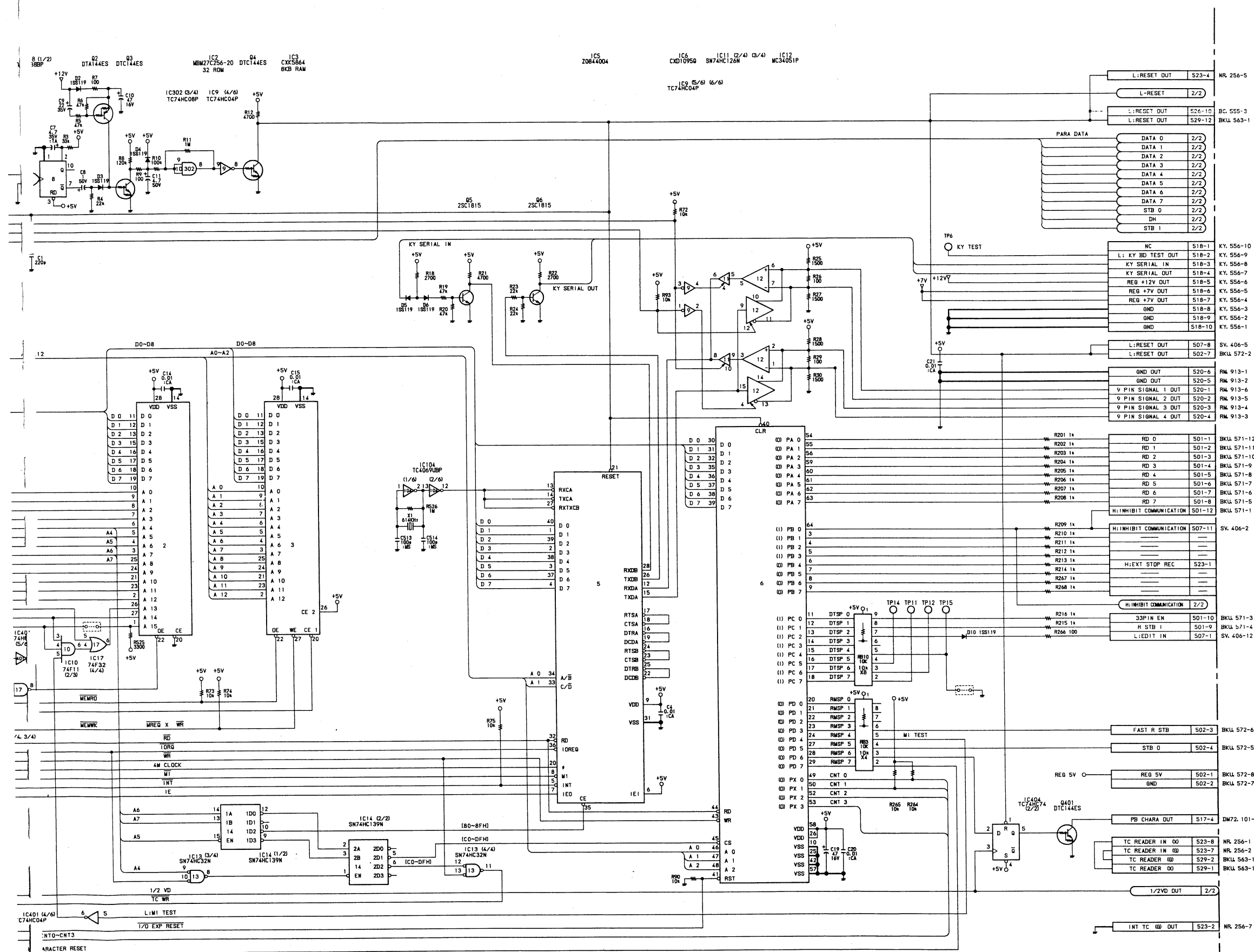
**KY-159**

— COMPONENT SIDE —
1-629-562-11
VO-9850
VO-9850P

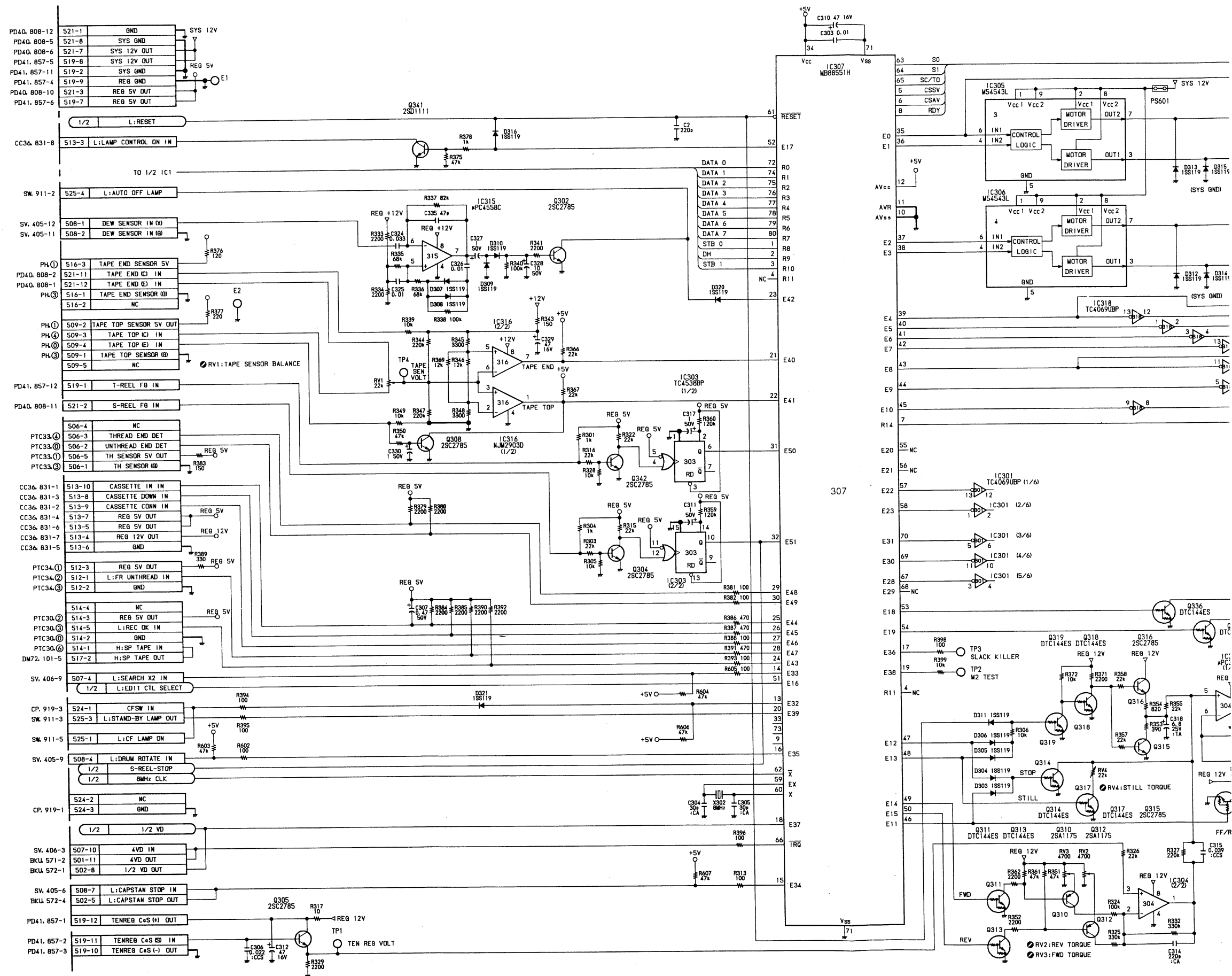
SY-141B (1/2): SYSTEM CONTROL



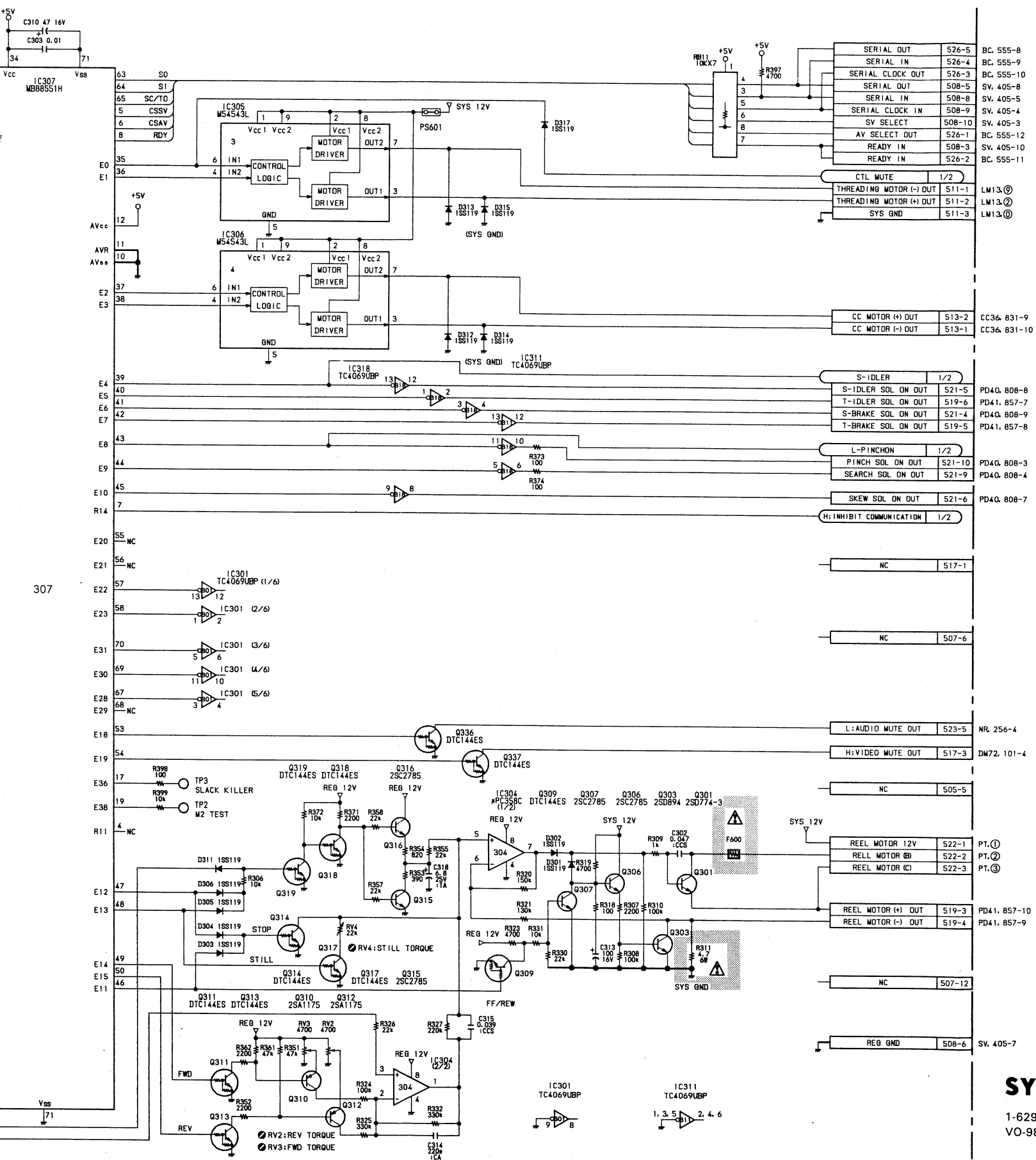
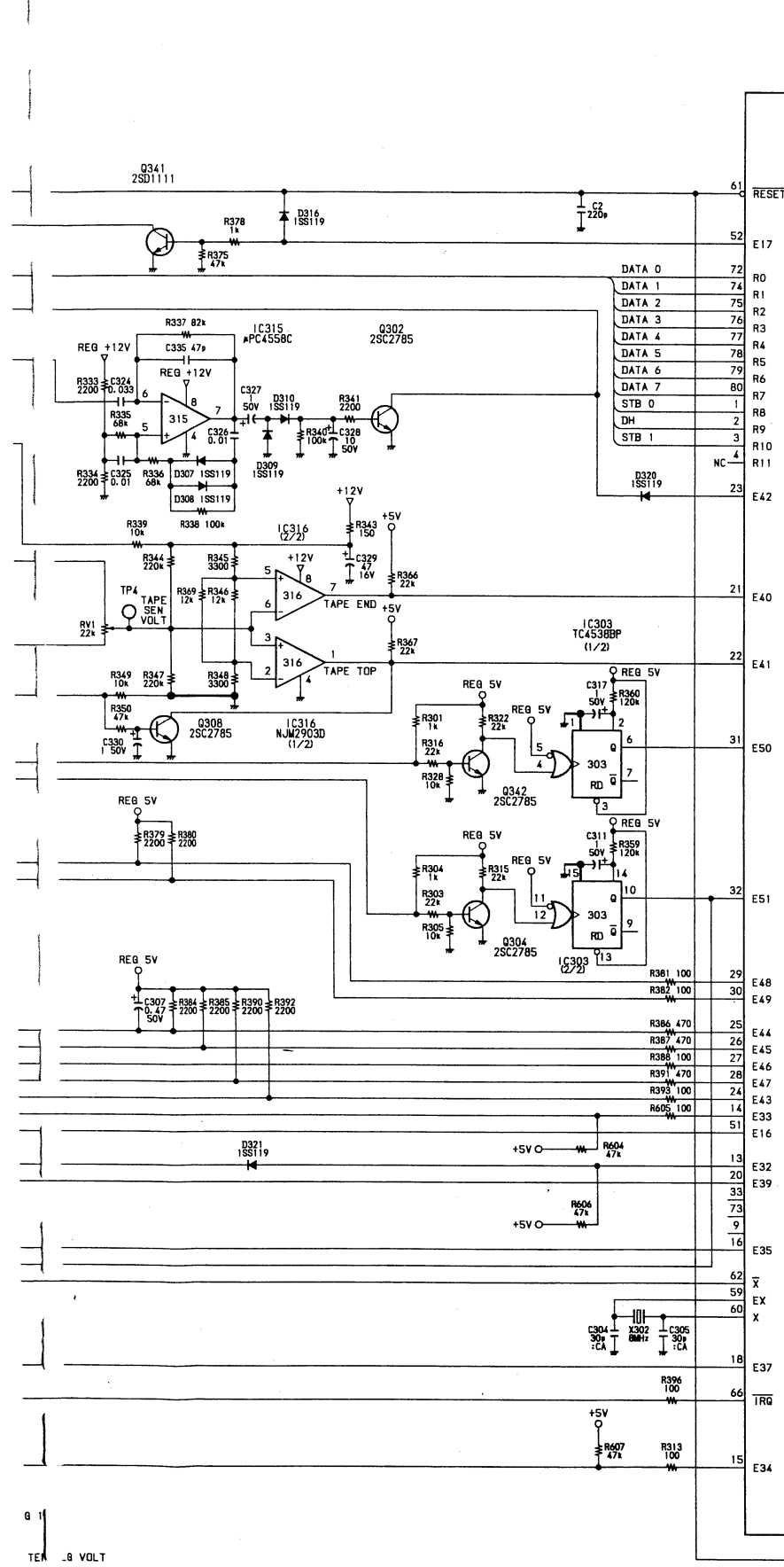
NOTE:
The -marked components are critical to safety. Replace only with same components as specified.



SY-141B (2/2): SYSTEM CONTROL, REEL SERVO



NOTE:
The -marked components are critical to safety. Replace only with same components as specified.



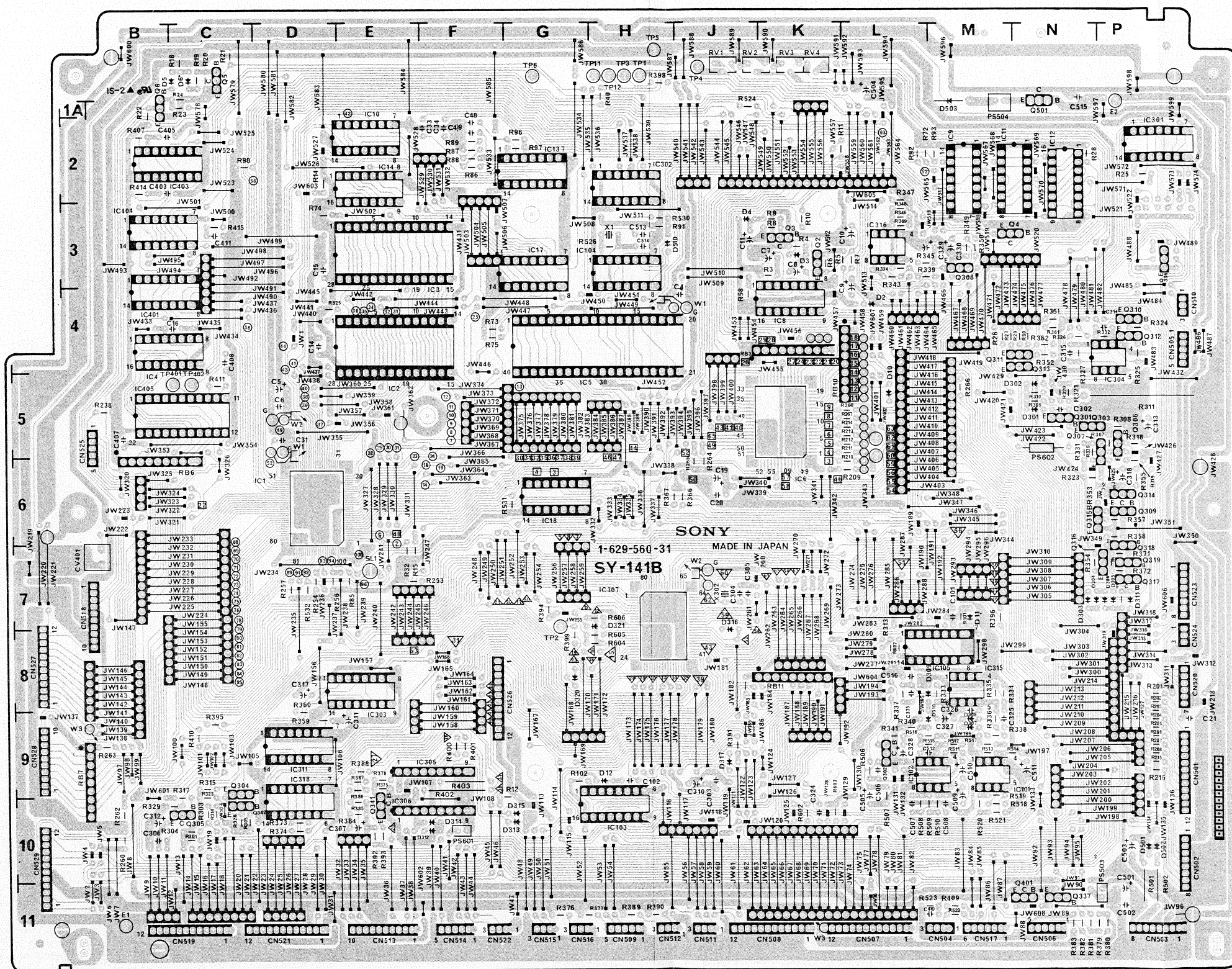
SY-141B: SYSTEM CONTROL, REEL SERVO

SY-141B (1-629-560-31) C

SY-141B (1-629-560-31) S

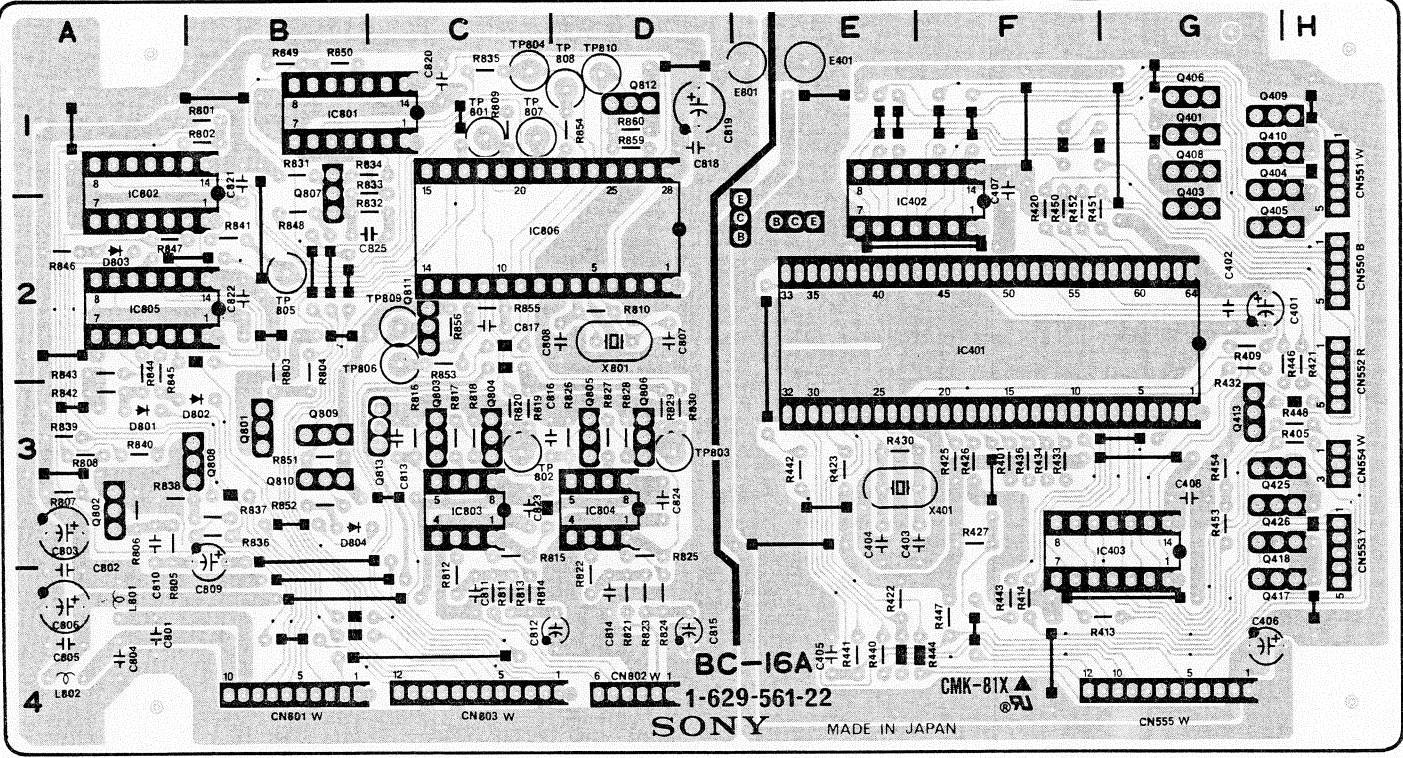
CNI2	E-4	D503	M-1	Q316	N-6
		D510	H-3	Q317	P-7
CN501	P-9			Q318	P-7
CN502	P-10	E1	B-11	Q319	P-7
CN503	P-11	E2	P-1	Q336	P-3
CN504	M-11			Q337	N-11
CN505	P-4	IC3	F-3	Q341	E-10
CN506	N-11	IC4	B-4	Q342	C-10
CN507	L-11	IC5	G-5	Q401	N-11
CN508	J-11	IC8	K-4	Q501	N-1
CN509	H-11	IC9	M-2		
CN510	P-4	IC10	E-2	RB3	K-4
CN511	J-11	IC11	M-2	RB6	B-6
CN512	H-11	IC12	N-2	RB7	A-9
CN513	E-11	IC13	G-2	RB10	K-4
CN514	F-11	IC14	E-3	RB11	K-8
CN515	G-11	IC17	G-3		
CN516	G-11	IC18	G-6	RV1	J-1
CN517	M-11	IC101	N-10	RV2	J-1
CN518	A-7	IC102	L-9	RV3	K-1
CN519	C-11	IC103	H-10	RV4	K-1
CN520	P-8	IC104	H-3		
CN521	D-11	IC105	M-8	TP1	H-1
CN522	F-11	IC301	P-2	TP2	G-8
CN523	P-7	IC302	H-2	TP3	H-1
CN524	P-8	IC303	E-8	TP4	J-1
CN525	A-5	IC304	P-5	TP5	H-1
CN526	G-8	IC305	E-9	TP6	G-1
CN527	A-8	IC306	E-10	TP11	H-1
CN528	A-9	IC311	D-9	TP12	H-1
CN529	A-10	IC315	M-8	TP14	L-5
		IC316	L-3	TP15	L-6
CV401	A-7	IC318	D-9	TP401	B-4
		IC401	B-4	TP402	C-4
D2	L-4	IC403	C-2		
D3	K-3	IC404	B-3	X1	H-3
D4	J-3	IC405	B-5	X302	J-7
D5	B-1				
D6	C-1	PS503	N-10		
D10	L-4	PS504	M-1		
D11	M-7	PS601	F-10		
D12	H-9	PS602	N-5		
D301	N-5				
D302	M-5	Q2	K-3		
D303	P-7	Q3	K-3		
D304	P-7	Q4	N-3		
D305	P-7	Q5	C-1		
D306	P-7	Q6	B-1		
D307	M-9	Q301	N-5		
D308	M-9	Q302	L-9		
D309	M-8	Q303	N-5		
D310	M-9	Q304	C-9		
D311	P-7	Q305	C-10		
D312	F-10	Q306	P-5		
D313	G-10	Q307	N-5		
D314	F-10	Q308	M-3		
D315	G-10	Q309	P-6		
D316	J-7	Q310	P-4		
D317	J-9	Q311	M-5		
D320	G-8	Q312	P-4		
D321	H-8	Q313	M-5		
D501	P-10	Q314	P-6		
D502	P-10	Q315	N-6		

IC1	D-6
IC6	K-6
IC307	H-7

**SY-141B**

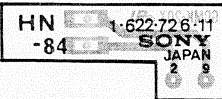
— SOLDERING SIDE —
1-629-560-31
VO-9850P

BC-16A (1/2): VIDEO/AUDIO TIMING CONTROL
HN-84: TC HEAD



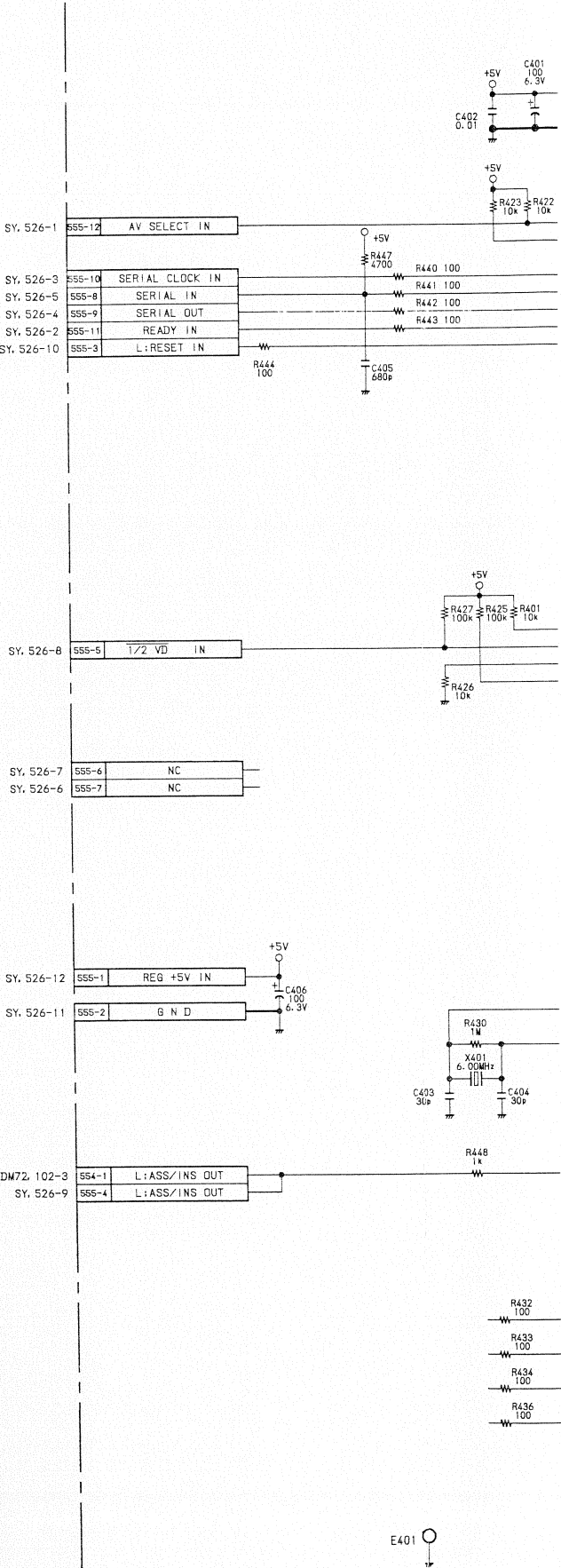
BC-16A

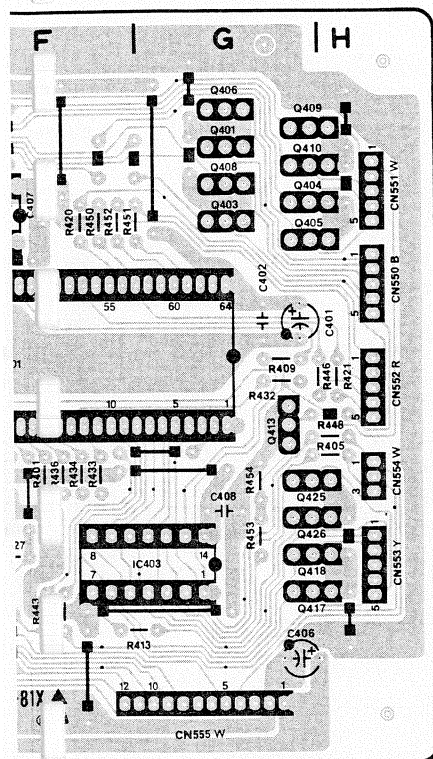
— SOLDERING SIDE —
1-629-561-22
VO-9850P



HN-84

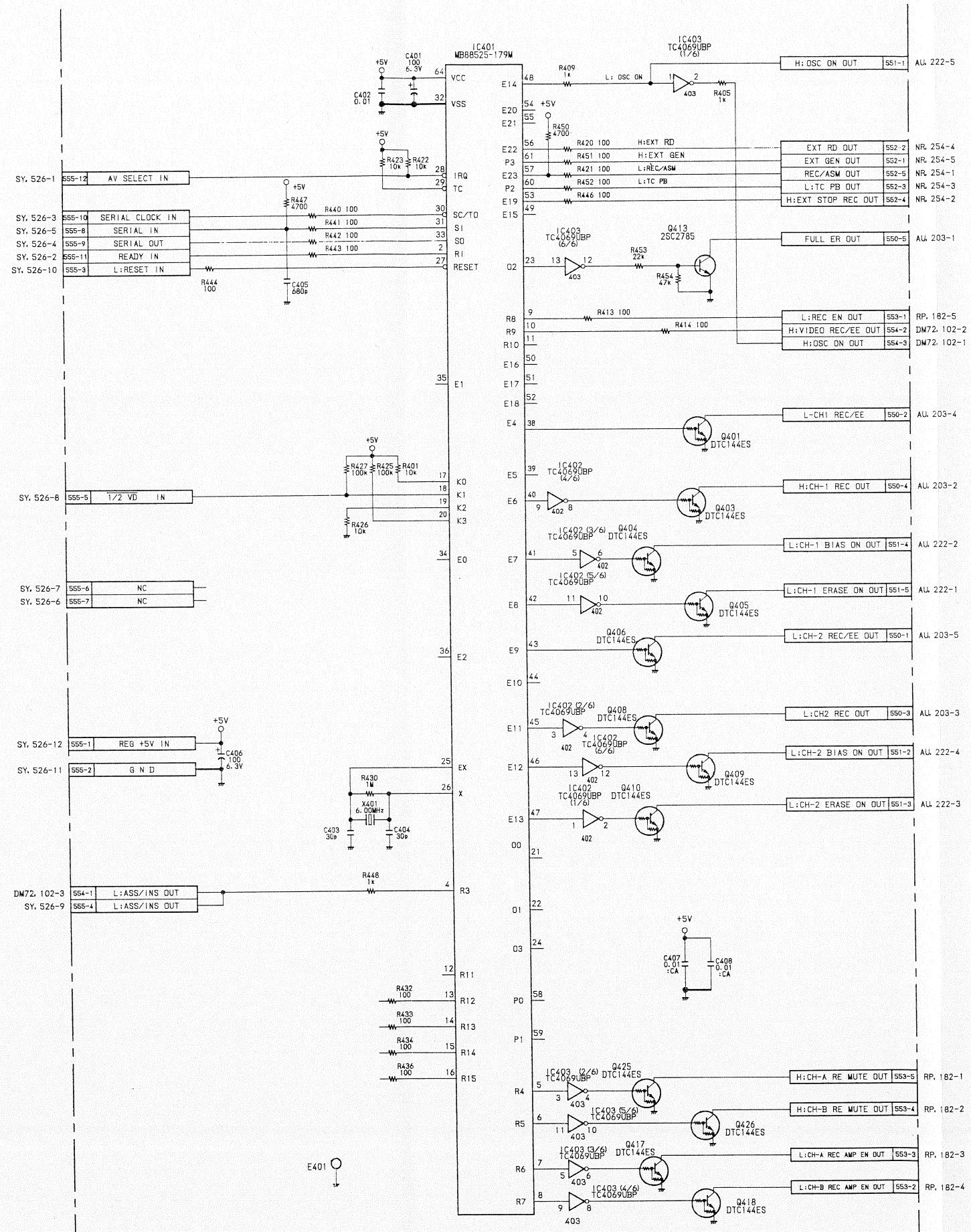
— COMPONENT SIDE —
1-622-726-11
VO-9850
VO-9850P
VO-9800
VO-9800P





BC-16A

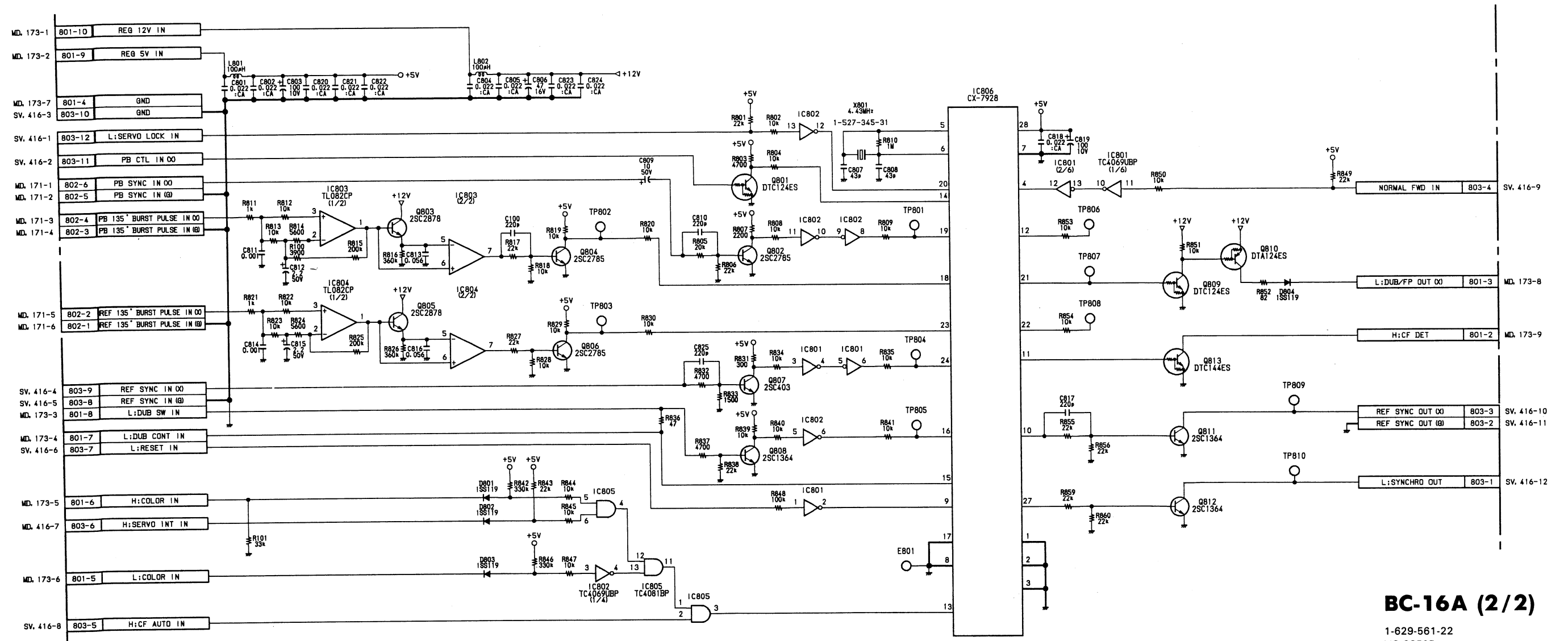
—SOLDERING SIDE—
1-629-561-22
VO-9850P



BC-16A (1/2)

1-629-561-22
VO-9850P

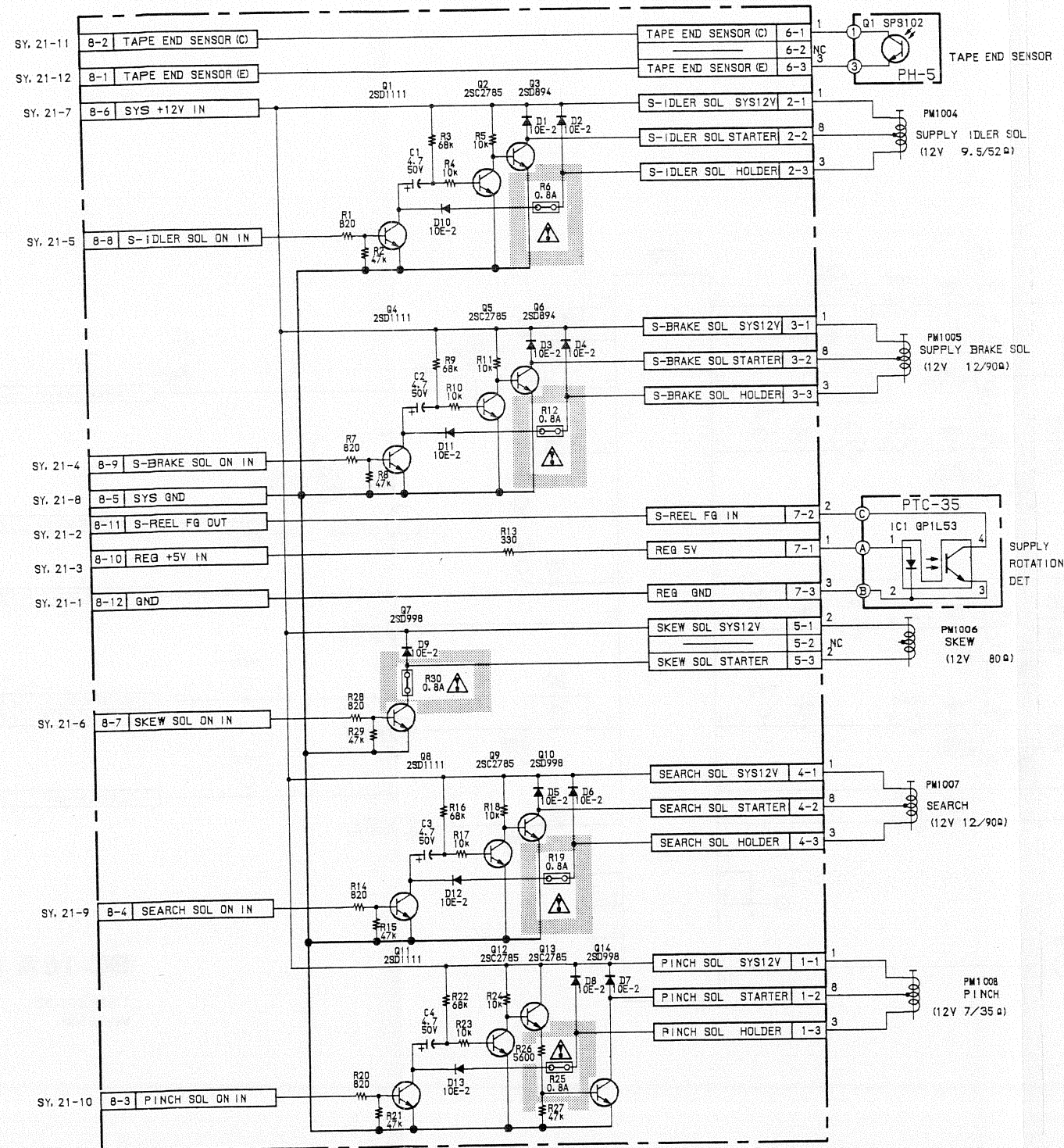
BC-16A (2/2): VIDEO/AUDIO TIMING CONTROL



BC-16A (2/2)

1-629-561-22
VO-9850P

PD-40: PLUNGER SOLENOIDS



注意 1: 印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の部品を使って下さい。

NOTE:
The -marked components are critical to safety. Replace only with same components as specified.

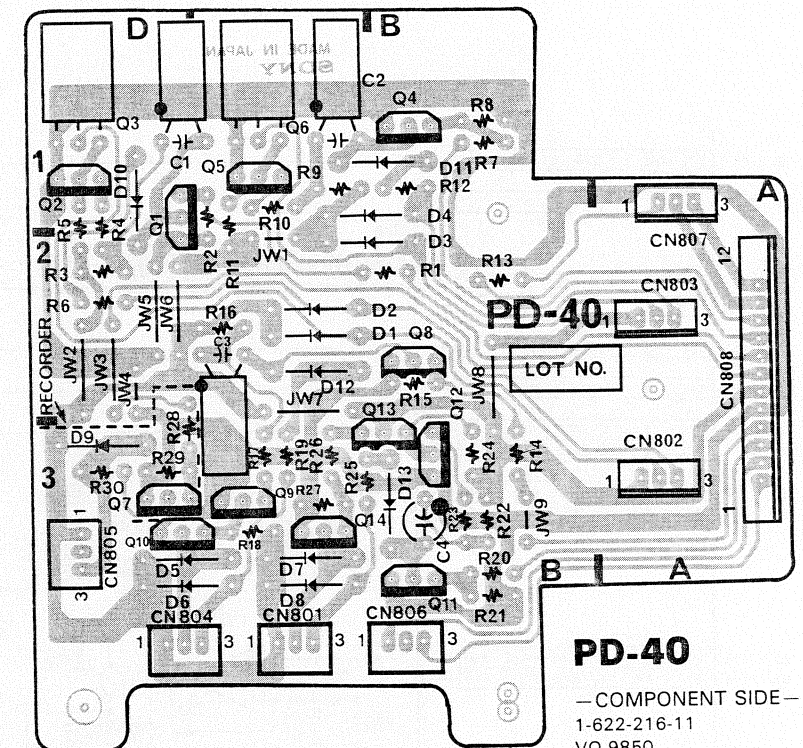
PD-40

1-622-216-11
VO-9850
VO-9850P
VO-9800
VO-9800P

PD-40: PLUNGER SOLENOIDS

PH-5: TAPE TOP/END DETECTOR

PTC-35: S/T REEL ROTATION DETECTOR



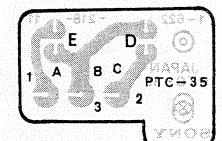
PD-40

— COMPONENT SIDE —
1-622-216-11
VO-9850
VO-9850P
VO-9800
VO-9800P



PH-5

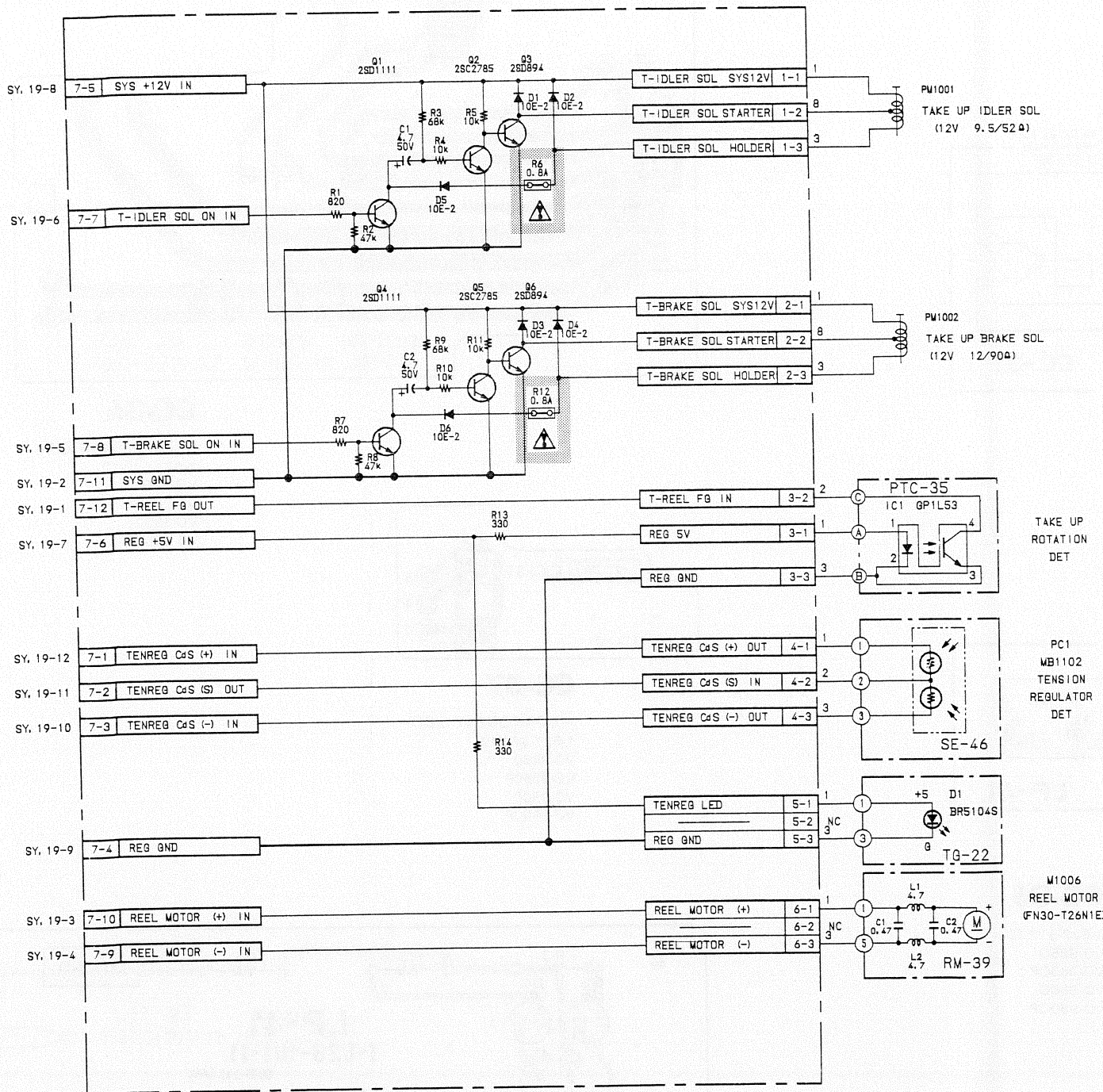
— COMPONENT SIDE —
1-603-737-11
VO-9850
VO-9850P
VO-9800
VO-9800P



PTC-35

— COMPONENT SIDE —
1-622-218-11
VO-9850
VO-9850P
VO-9800
VO-9800P

PD-41: PLUNGER SOLENOIDS



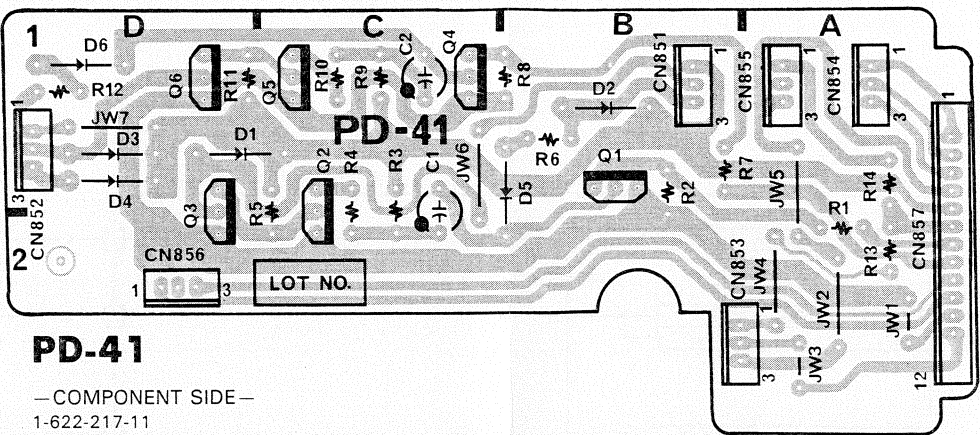
PD-41

1-622-217-11
VO-9850
VO-9850P
VO-9800
VO-9800P

注意 1: 印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の 部品を使って下さい。

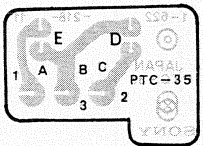
NOTE:
The -marked components are critical to safety. Replace only with same components as specified.

PD-41: PLUNGER SOLENOIDS
PTC-35: S/T REEL ROTATION DETECTOR
RM-39: REEL MOTOR
SE-46: TENSION REGULATOR DETECTOR
TG-22: TENSION REGULATOR LED



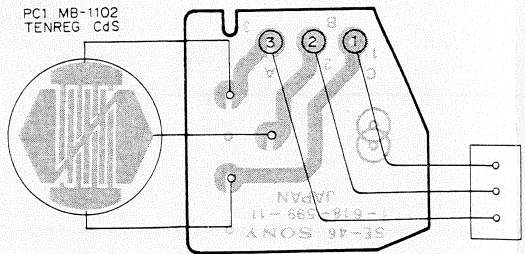
PD-41

— COMPONENT SIDE —
1-622-217-11
VO-9850
VO-9850P
VO-9800
VO-9800P



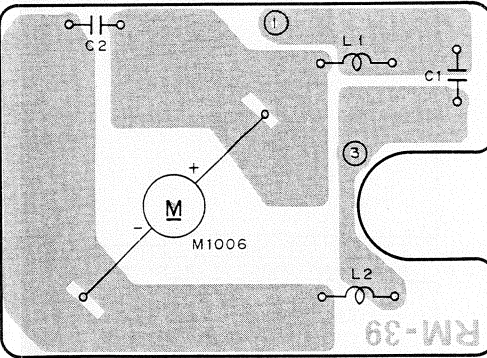
PTC-35

— COMPONENT SIDE —
1-622-218-11
VO-9850
VO-9850P
VO-9800
VO-9800P



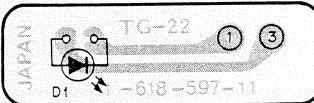
SE-46

— SOLDERING SIDE —
1-618-599-11
VO-9850
VO-9850P
VO-9800
VO-9800P



RM-39

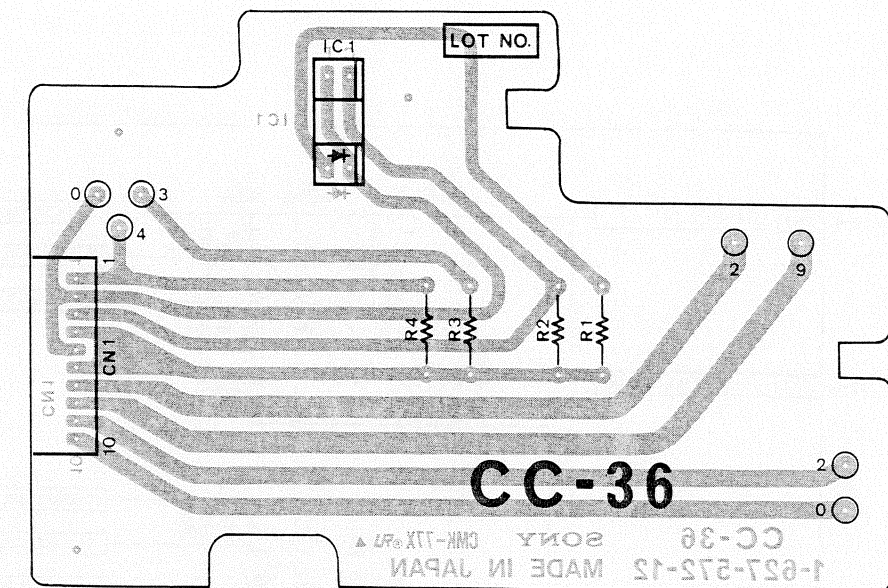
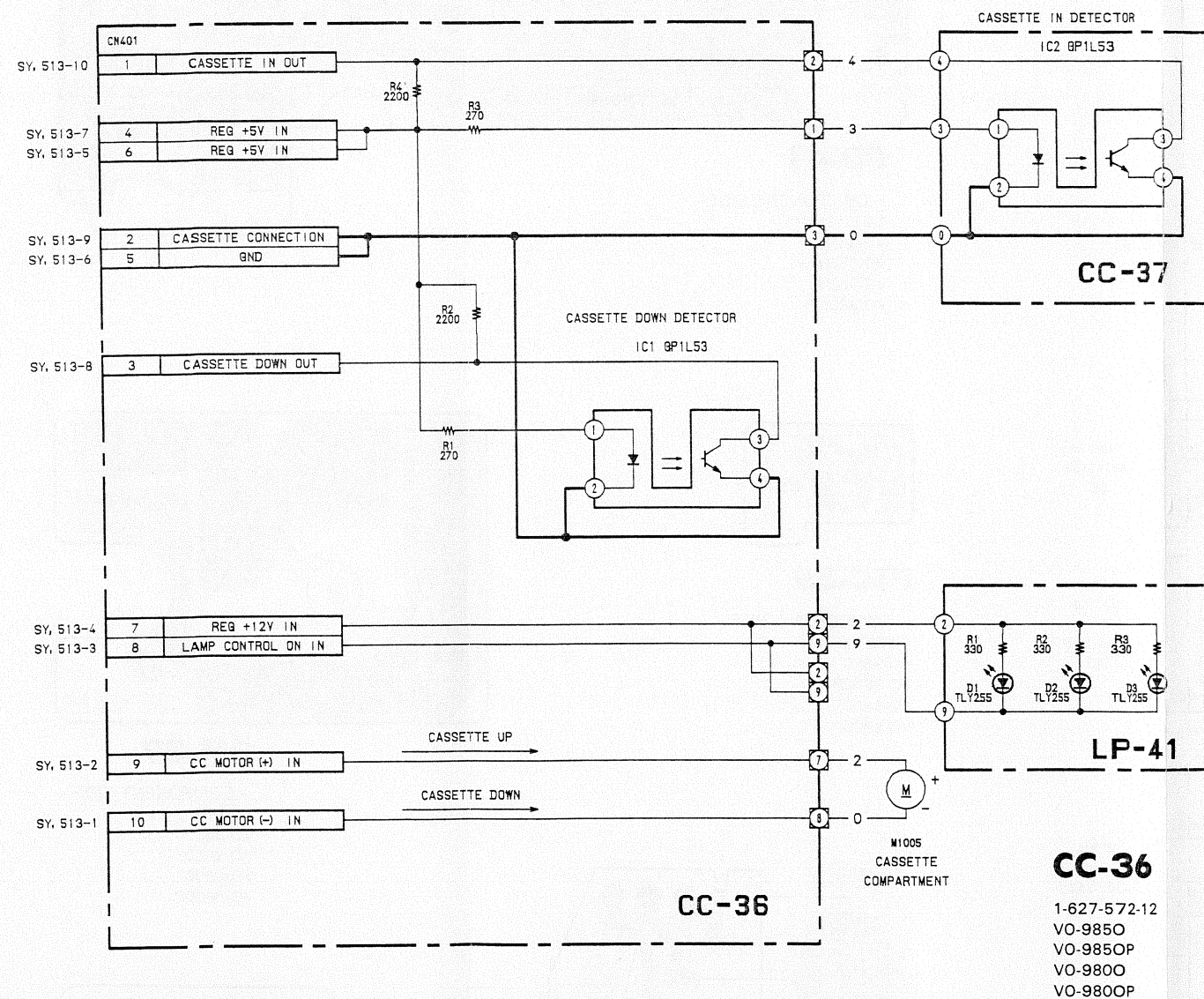
— COMPONENT SIDE —
1-618-873-11
VO-9850
VO-9850P
VO-9800
VO-9800P



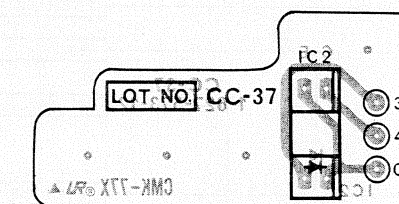
TG-22

— COMPONENT SIDE —
1-618-597-11
VO-9850
VO-9850P
VO-9800
VO-9800P

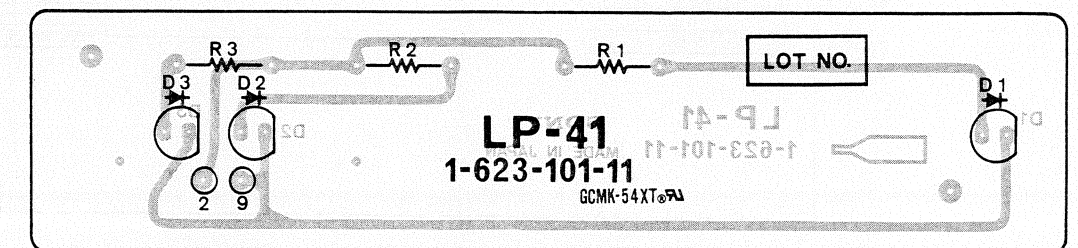
CC-36: JUNCTION BOARD FOR CC-37, LP-41
 CC-37: CASSETTE IN DETECTOR
 LP-41: CASSETTE COMPARTMENT LAMP

**CC-36**

— COMPONENT SIDE —
 1-627-572-12
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**CC-37**

— COMPONENT SIDE —
 1-627-573-12
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

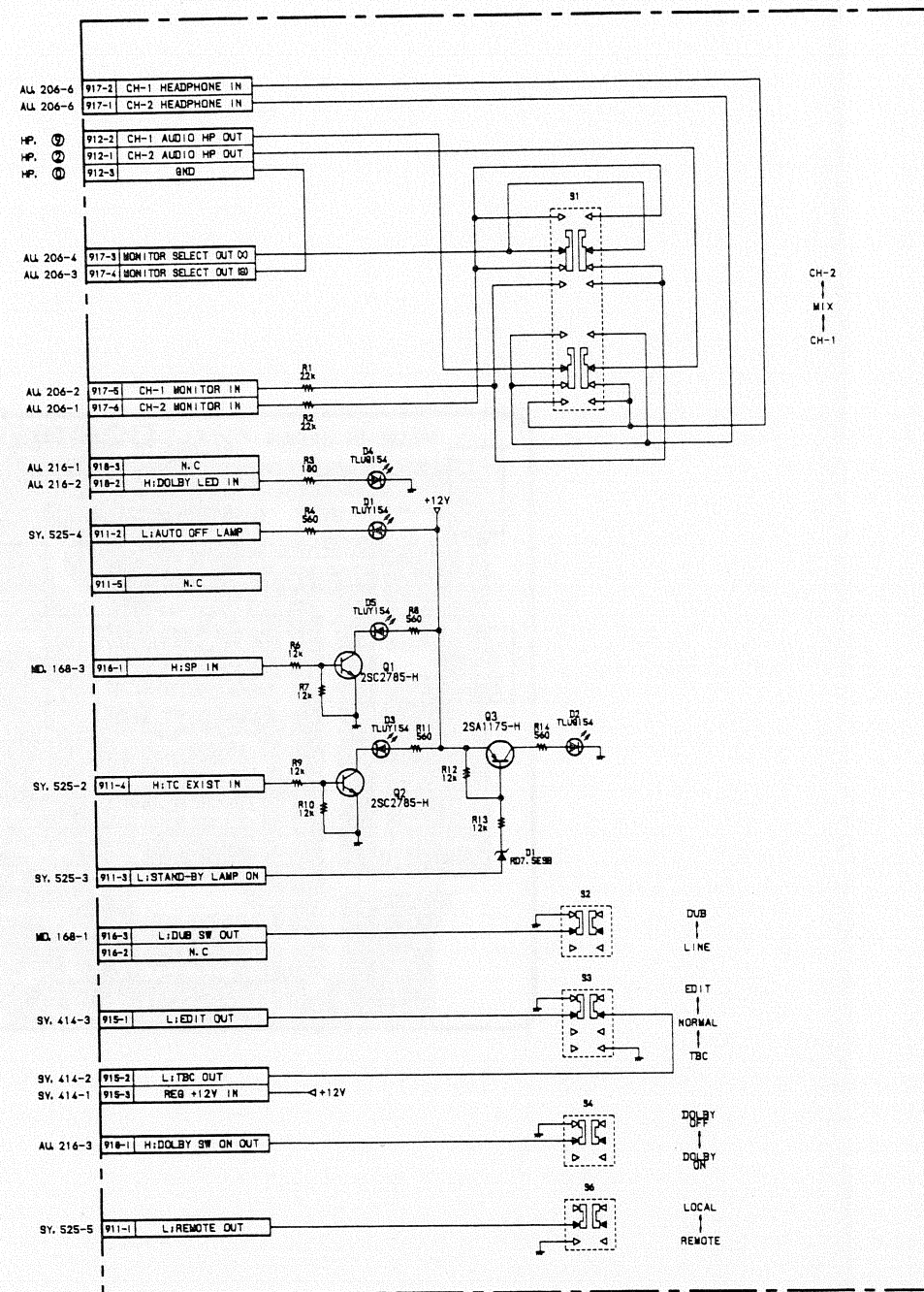
**LP-41**

— COMPONENT SIDE —
 1-623-101-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

SW-315B

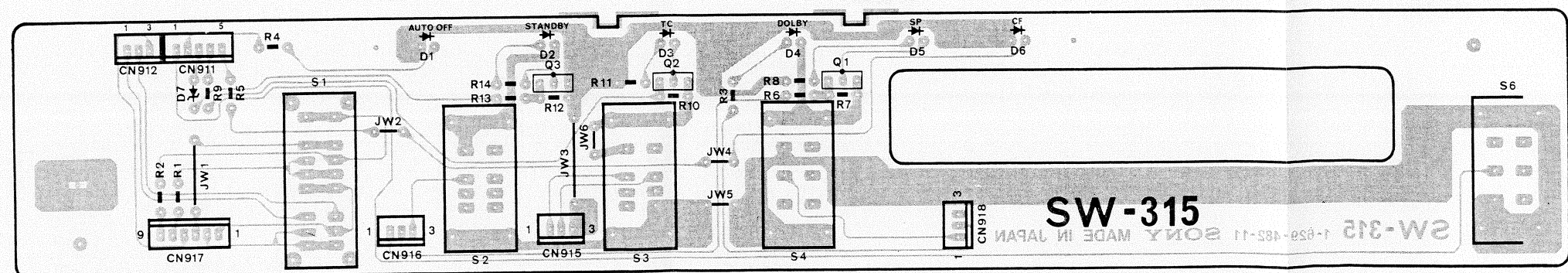
SW-315B

SW-315B: SELECT SWITCH



SW-315B

1-629-482-11
VO-9850P

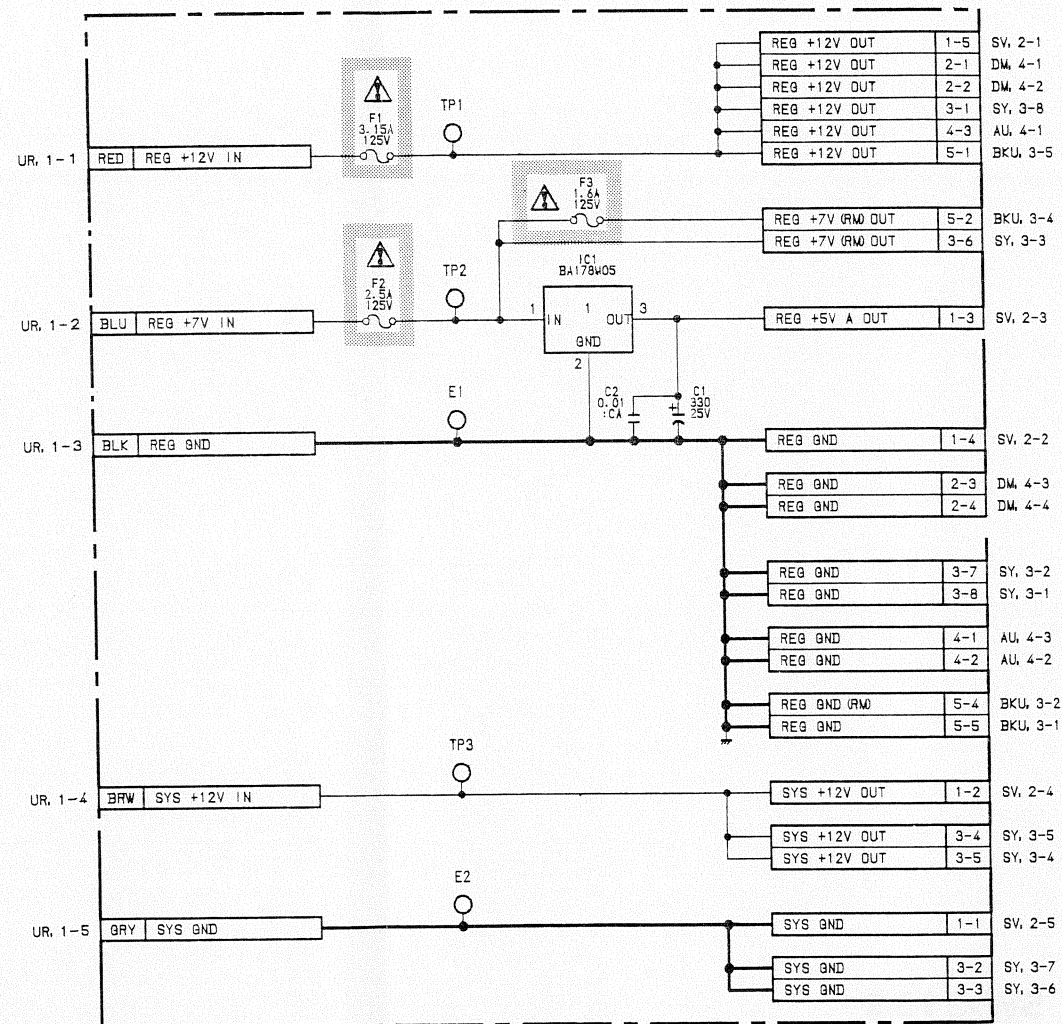


SW-315

SW-315B

— COMPONENT SIDE —
1-629-482-11
VO-9850P

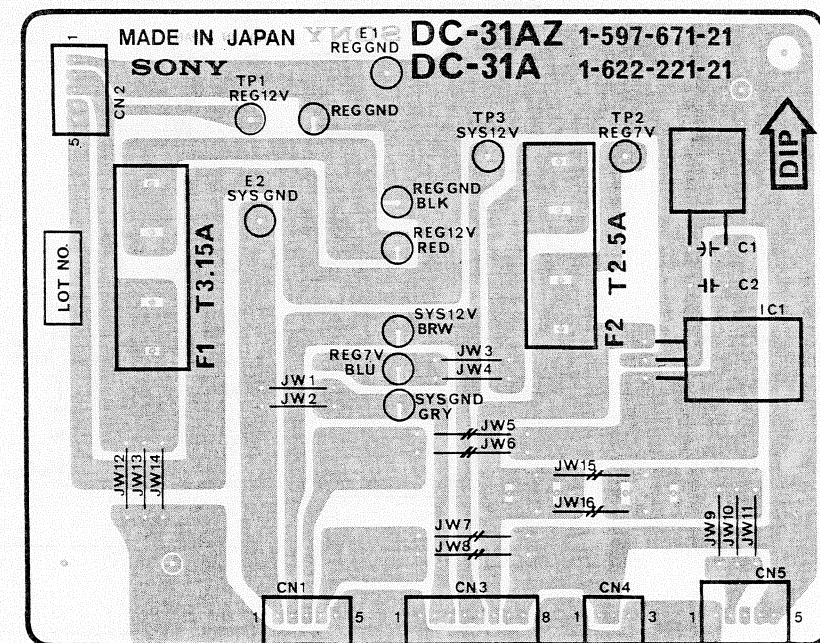
DC-31P: DC SUPPLY



NOTE:
The -marked components are critical to safety. Replace only with same components as specified.

DC-31P

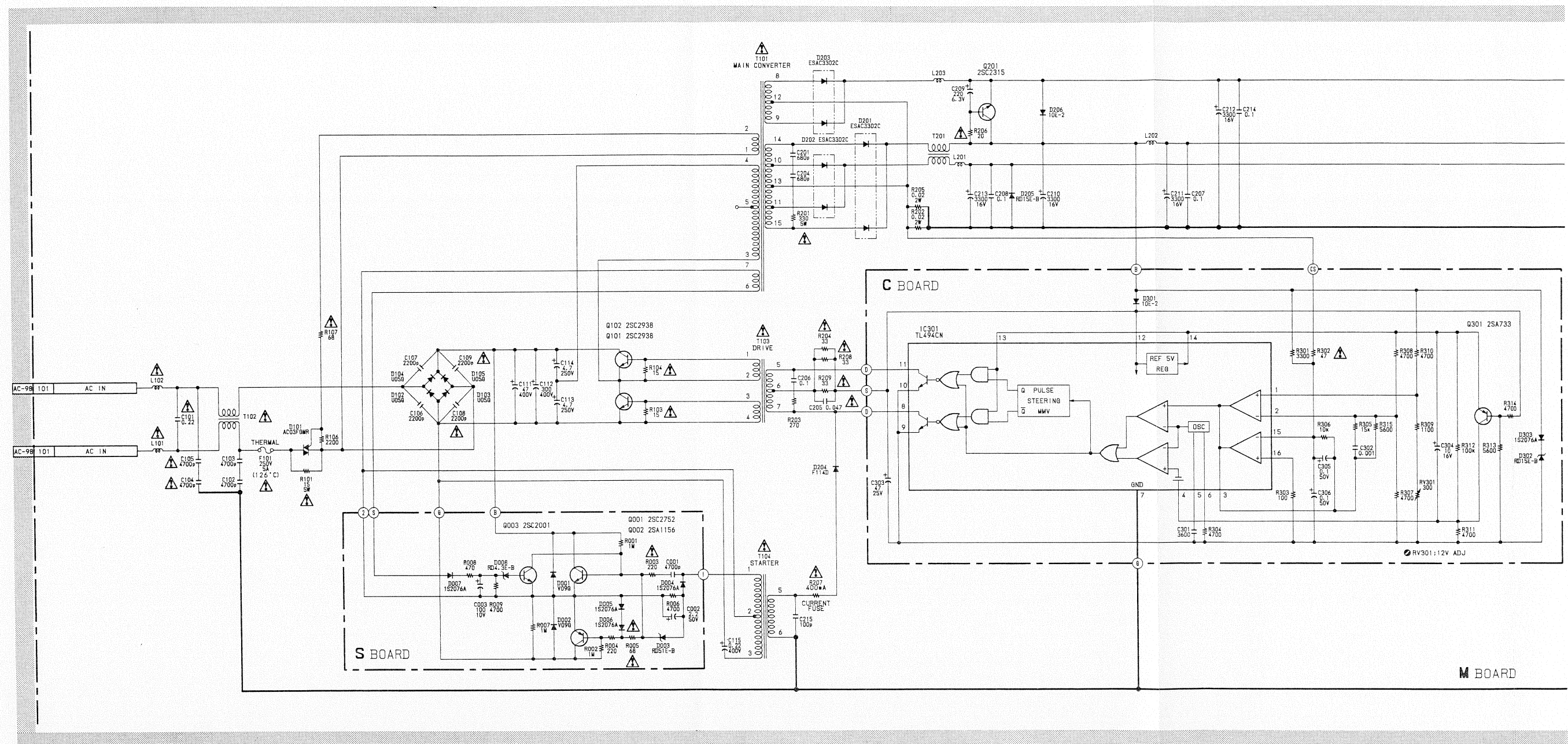
1-622-221-21
VO-9850P
VO-9800P



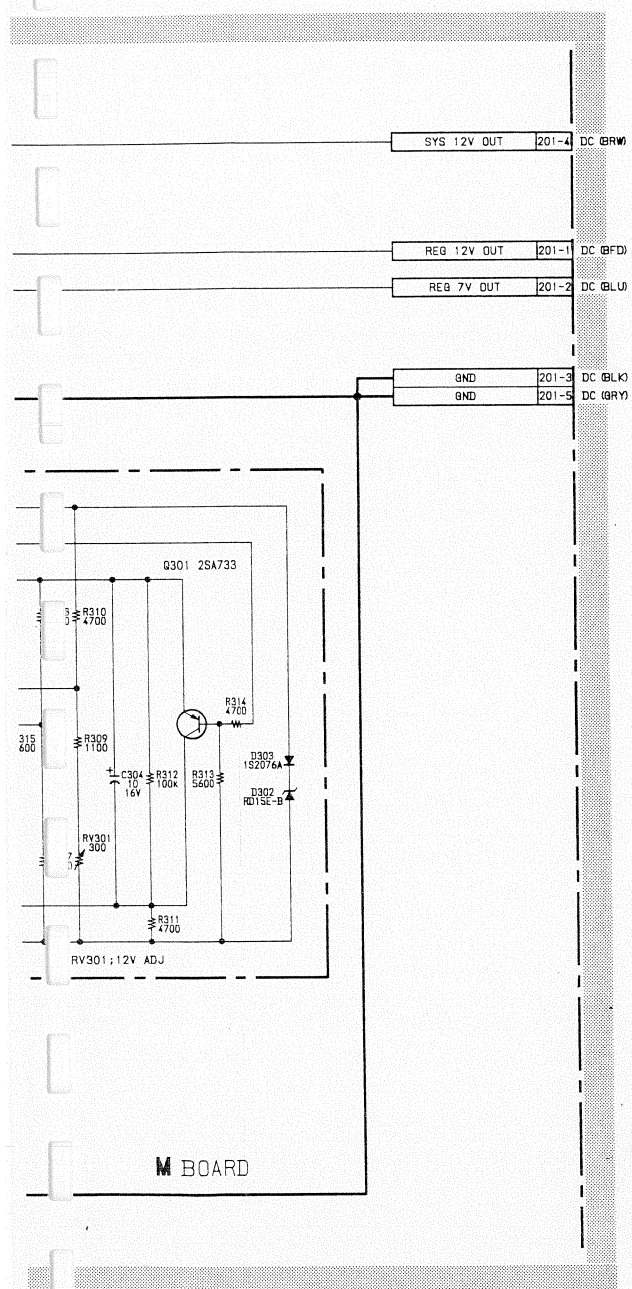
DC-31P

— COMPONENT SIDE —
1-622-221-21
VO-9850P
VO-9800P

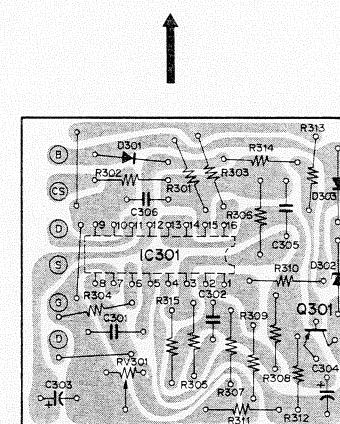
UR-02: SWITCHING REGULATOR



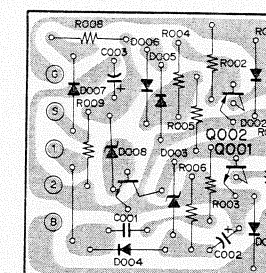
NOTE:
The -marked components are critical to safety. Replace only with same components as specified.



M—SOLDERING SIDE—



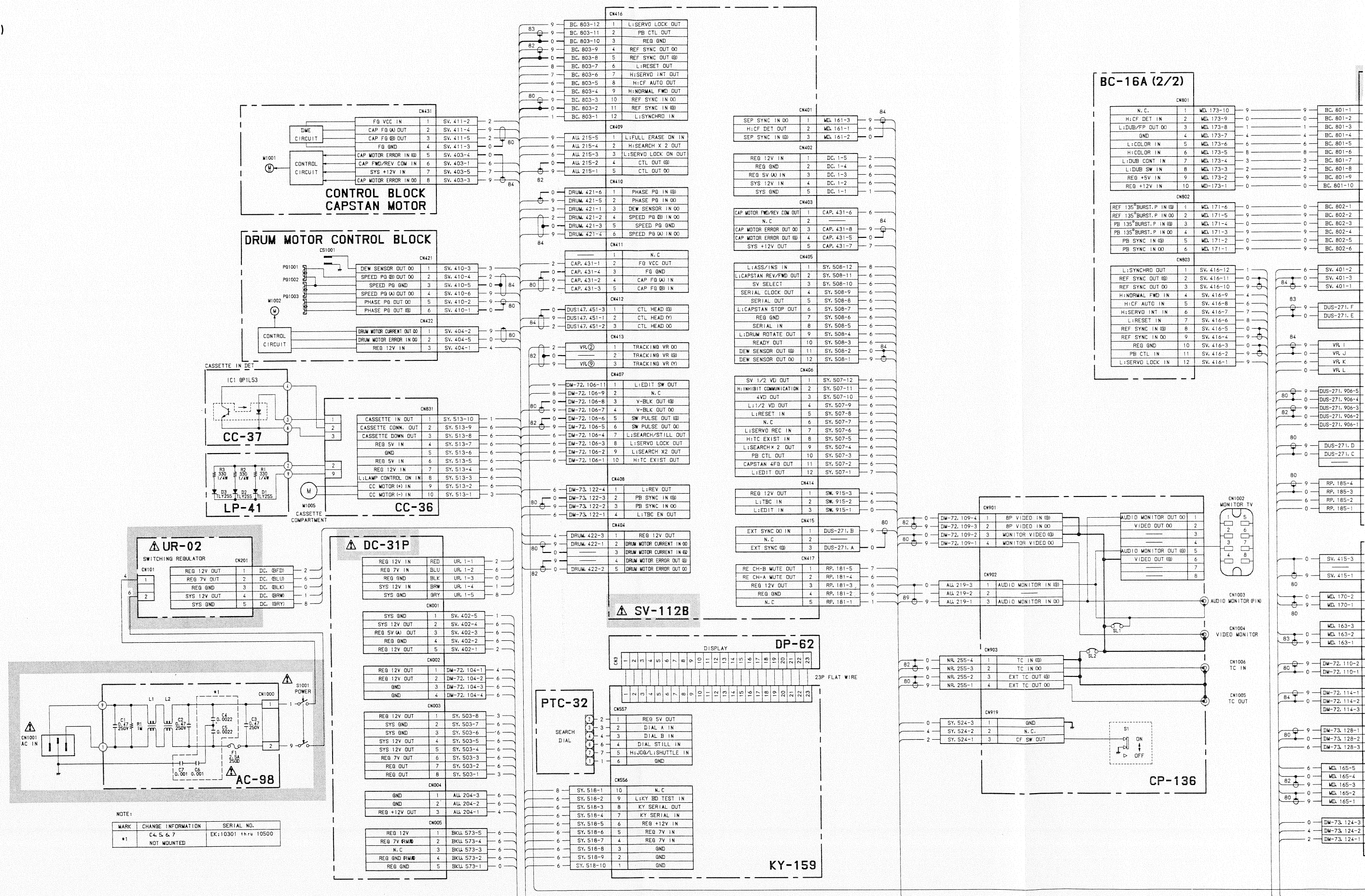
C—SOLDERING SIDE—

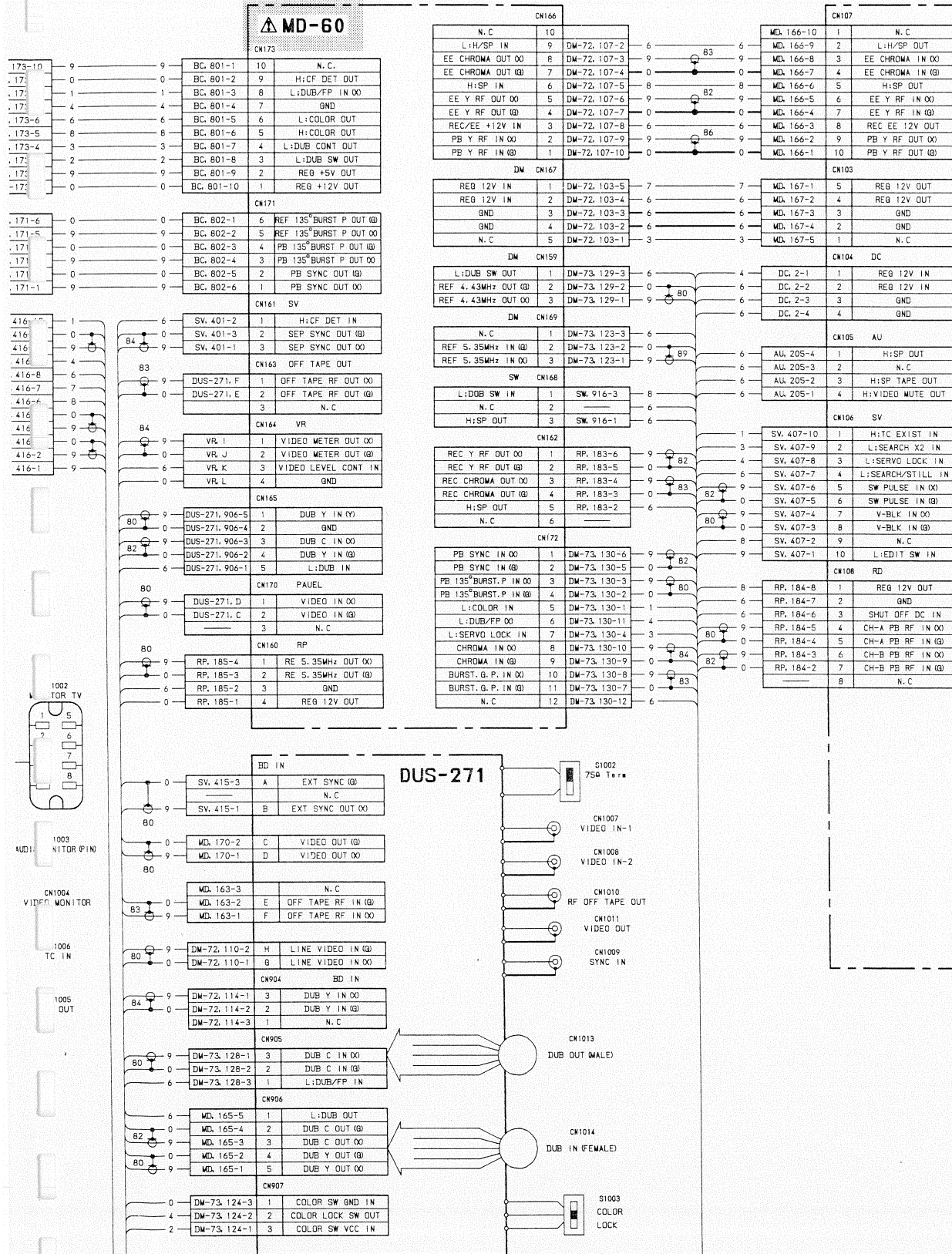


S —SOLDERING SIDE—

UR-02

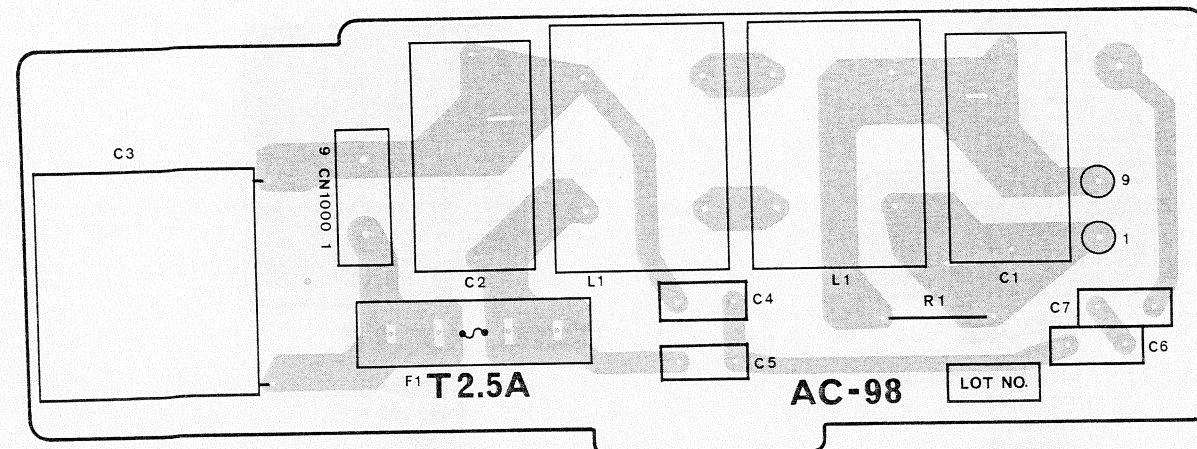
—SOLDERING SIDE—
1-413-075-00
VO-9850P
VO-9800P



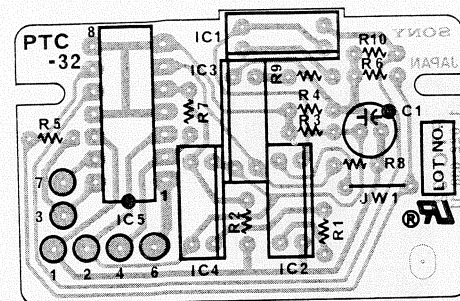


AC-98: LINE FILTER
PTC-32: SEARCH DIAL

EK; S/N 10001 thru 10300
S/N 10 501 and higher

**AC-98**

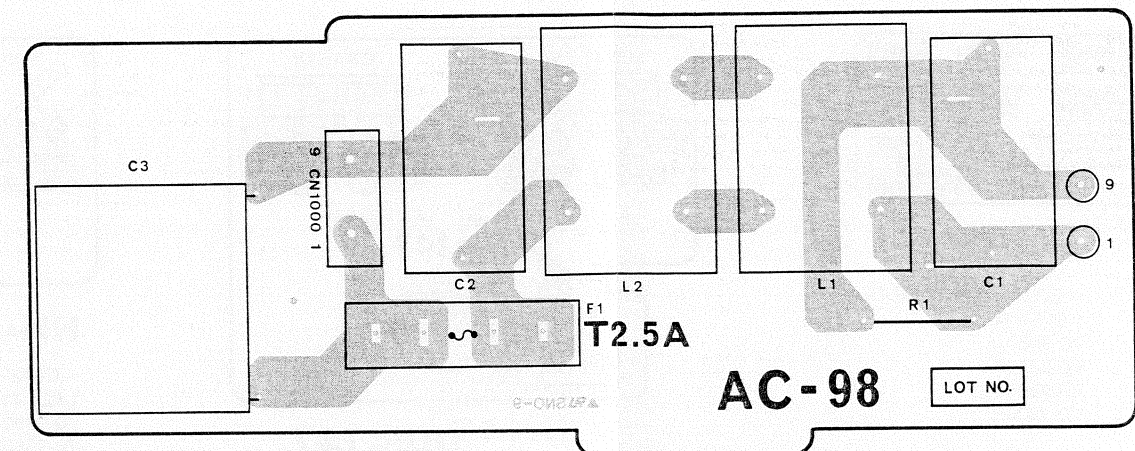
— COMPONENT SIDE —
1-630-457-13
VO-9850P
VO-9800P

**PTC-32**

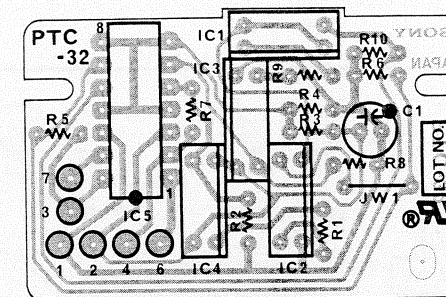
— COMPONENT SIDE —
1-622-638-11
VO-9850
VO-9850P
VO-9800
VO-9800P

AC-98: LINE FILTER
PTC-32: SEARCH DIAL

EK; S/N 10301 thru 10500

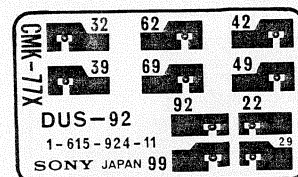
**AC-98**

— COMPONENT SIDE —
1-630-457-12
VO-9850P
VO-9800P

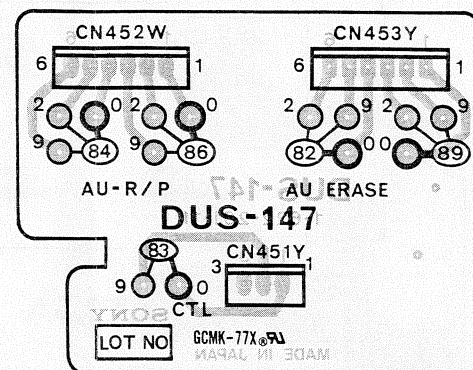
**PTC-32**

— COMPONENT SIDE —
1-622-638-11
VO-9850
VO-9850P
VO-9800
VO-9800P

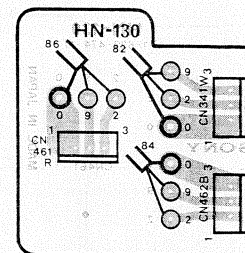
DUS-92: R/P HEAD, AUDIO ERASE HEAD
 DUS-147: JUNCTION BOARD FOR AUDIO HEAD
 EC-32: FR CTL HEAD
 HN-130: ERASE HEAD
 MT-53: METER LAMP

**DUS-92**

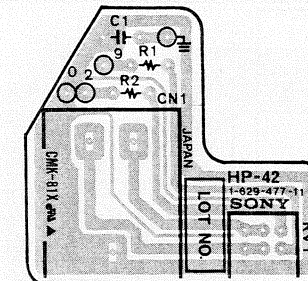
— COMPONENT SIDE —
 1-615-924-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**DUS-147**

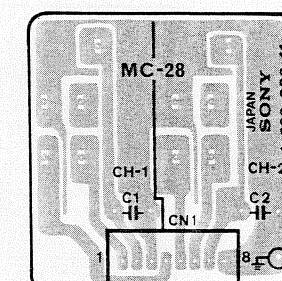
— COMPONENT SIDE —
 1-622-261-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**HN-130**

— COMPONENT SIDE —
 1-629-474-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**HP-42**

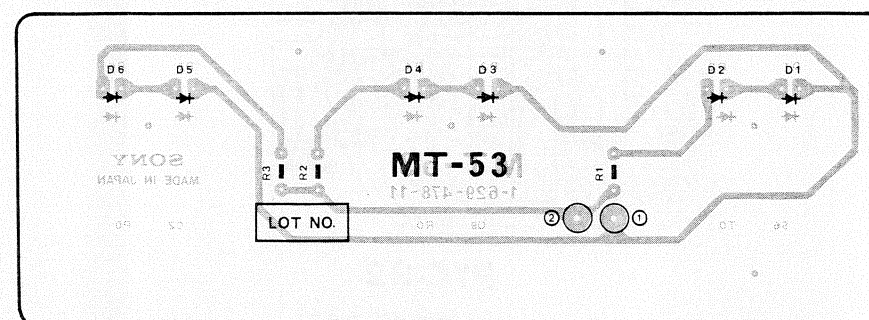
— COMPONENT SIDE —
 1-629-477-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**MC-28**

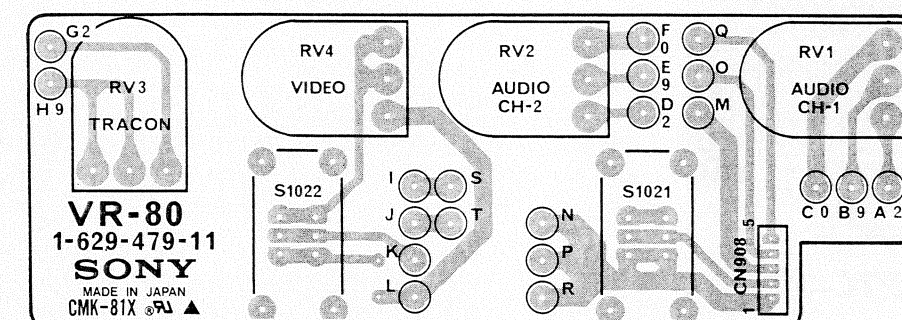
— COMPONENT SIDE —
 1-622-222-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**EC-32**

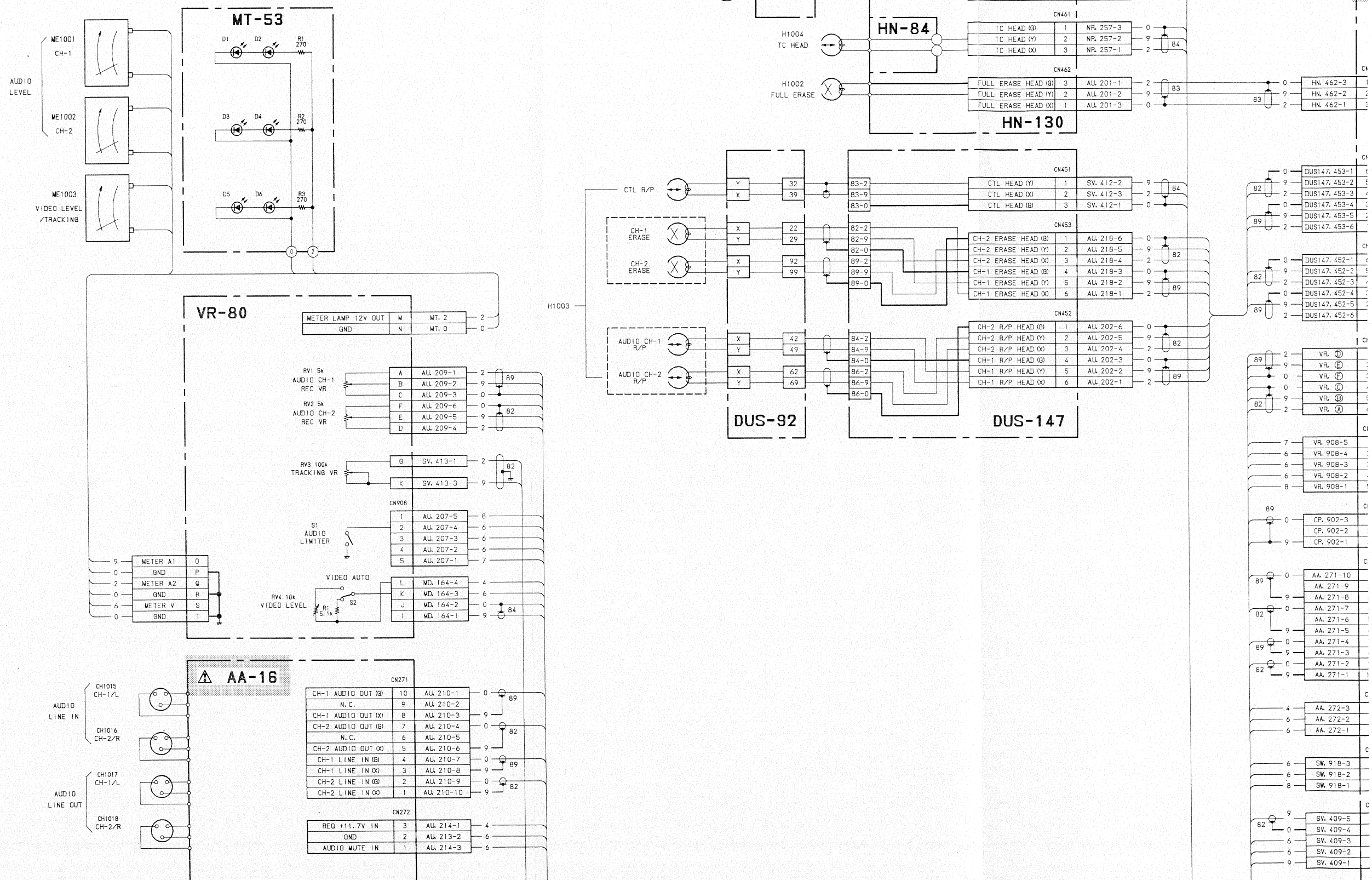
— COMPONENT SIDE —
 1-629-475-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**MT-53**

— COMPONENT SIDE —
 1-629-478-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**VR-80**

— COMPONENT SIDE —
 1-629-479-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P



AU-124

CN201		
HN 462-3	1	FULL ERASE HEAD (Q)
HN 462-2	2	FULL ERASE HEAD (Y)
HN 462-1	3	FULL ERASE HEAD (X)

CN218		
DUS147, 453-1	6	CH-2 ERASE HEAD (Q)
DUS147, 453-2	5	CH-2 ERASE HEAD (Y)
DUS147, 453-3	4	CH-2 ERASE HEAD (X)
DUS147, 453-4	3	CH-1 ERASE HEAD (Q)
DUS147, 453-5	2	CH-1 ERASE HEAD (Y)
DUS147, 453-6	1	CH-1 ERASE HEAD (X)

CN202		
DUS147, 452-1	6	CH-2 R/P HEAD (Q)
DUS147, 452-2	5	CH-2 R/P HEAD (Y)
DUS147, 452-3	4	CH-2 R/P HEAD (X)
DUS147, 452-4	3	CH-1 R/P HEAD (Q)
DUS147, 452-5	2	CH-1 R/P HEAD (Y)
DUS147, 452-6	1	CH-1 R/P HEAD (X)

CN209		
VR ①	1	CH-1 REC VR OUT (X)
VR ②	2	CH-1 REC VR IN (Y)
VR ③	3	CH-1 REC VR (Q)
VR ④	4	CH-2 REC VR (Q)
VR ⑤	5	CH-2 REC VR IN (Y)
VR ⑥	6	CH-2 REC VR OUT (X)

CN207		
VR 908-5	1	CH-1 METER OUT
VR 908-4	2	CH-2 METER OUT
VR 908-3	3	METER LAMP OUT
VR 908-2	4	H:LIMITER OFF
VR 908-1	5	GND

CN219		
CP 902-3	1	AUDIO MONITOR OUT (X)
CP 902-2	2	N.C.
CP 902-1	3	AUDIO MONITOR OUT (Q)

CN210		
AA 271-10	1	CH-1 AUDIO IN (Q)
AA 271-9	2	N.C.
AA 271-8	3	CH-1 AUDIO IN (X)
AA 271-7	4	CH-2 AUDIO IN (Q)
AA 271-6	5	N.C.
AA 271-5	6	CH-2 AUDIO IN (X)
AA 271-4	7	CH-1 LINE OUT (Q)
AA 271-3	8	CH-1 LINE OUT (X)
AA 271-2	9	CH-2 LINE OUT (Q)
AA 271-1	10	CH-2 LINE OUT (X)

CN214		
AA 272-3	1	REG +11.7V OUT
AA 272-2	2	GND
AA 272-1	3	AUDIO MUTE OUT

CN216		
SW 918-3	1	N.C.
SW 918-2	2	H:DOLBY LED OUT
SW 918-1	3	H:DOLBY SW ON IN

CN215		
SV 409-5	1	CTL IN (X)
SV 409-4	2	CTL IN (Q)
SV 409-3	3	L:SERVO LOCK ON IN
SV 409-2	4	H:SEARCH X2 IN
SV 409-1	5	L:FULL ERASE ON OUT

CN203		
L:FULL ERASE ON IN	1	BC 550-5
L:AUDIO CH-1 REC IN	2	BC 550-4
L:AUDIO CH-2 REC IN	3	BC 550-3
L:AUDIO CH-1 EE IN	4	BC 550-2
L:AUDIO CH-2 EE IN	5	BC 550-1

CN204		
REC +12V IN	1	DC 4-3
GND	2	DC 4-2
GND	3	DC 4-1

CN205		
H:VIDEO MUTE IN	1	DW-72, 105-4
H:SP TAPE IN	2	DW-72, 105-3
N.C.	3	DW-72, 105-2
H:SP IN	4	DW-72, 105-1

CN206		
CH-2 MONITOR OUT	1	SW 917-6
CH-2 MONITOR OUT	2	SW 917-5
MONITOR SELECT IN (Q)	3	SW 917-4
MONITOR SELECT IN (X)	4	SW 917-3
CH-1 HEADPHONE OUT	5	SW 917-2
CH-2 HEADPHONE OUT	6	SW 917-1

CN208		
CH-2 MIC IN (Q)	1	MC 261-8
CH-2 MIC IN (Y)	2	MC 261-7
CH-2 MIC IN (X)	3	MC 261-6
L:CH-2 MIC IN	4	MC 261-5
L:CH-1 MIC IN	5	MC 261-4
CH-1 MIC IN (Q)	6	MC 261-3
CH-1 MIC IN (Y)	7	MC 261-2
CH-1 MIC IN (X)	8	MC 261-1

CN212		
CH-2 REC SIG (Q)	1	NR 252-12
CH-2 REC SIG IN (X)	2	NR 252-11
CH-2 DOLBY SIG IN (Y)	3	NR 252-10
CH-2 DOLBY SIG OUT (Q)	4	NR 252-9
CH-2 DOLBY SIG (Q)	5	NR 252-8
CH-2 DOLBY PILOT IN (X)	6	NR 252-7
CH-1 DOLBY PILOT IN (Q)	7	NR 252-6
CH-1 DOLBY SIG (Q)	8	NR 252-5
CH-1 DOLBY SIG OUT (Q)	9	NR 252-4
CH-1 DOLBY SIG IN (Y)	10	NR 252-3
CH-1 REC SIG IN (Q)	11	NR 252-2
CH-1 REC SIG (Q)	12	NR 252-1

CN213		
REG +11.7V OUT	4	NR 253-9
GND	5	NR 253-8
L:CH-1 EE OUT	1	NR 253-12
L:CH-2 EE OUT	2	NR 253-11
H:CH-1 REC OUT	3	NR 253-10
H:SP OUT	6	NR 253-7
CH-1 DOLBY DET OUT (X)	7	NR 253-6
CH-1 DOLBY DET OUT (Q)	8	NR 253-5
CH-2 DOLBY DET OUT (Q)	9	NR 253-4
CH-2 DOLBY DET OUT (X)	10	NR 253-3
H:VIDEO MUTE OUT	11	NR 253-2
H:CH-2 REC OUT	12	NR 253-1

CN217		
L:AUDIO MUTE IN	1	NR 251-8
H:DOLBY LED ON OUT	2	NR 251-7
H:DOLBY SW ON OUT	3	NR 251-6
CTL OUT (Q)	4	NR 251-5
CTL (Q)	5	NR 251-4
L:SERVO LOCK ON OUT	6	NR 251-3
L:FULL ERASE ON OUT	7	NR 251-2
N.C.	8	NR 251-1

CN222		
L:CH-1 ERASE ON IN	1	BC 551-5
L:CH-1 BIAS ON IN	2	BC 551-4
L:CH-2 ERASE ON IN	3	BC 551-3
L:CH-2 BIAS ON IN	4	BC 551-2
L:OSC ON IN	5	BC 551-1

MC-28

CN261		
AU 208-8	1	CH-1 MIC OUT (X)
AU 208-7	2	CH-1 MIC OUT (Y)
AU 208-6	3	CH-1 MIC OUT (Q)
AU 208-5	4	L:CH-1 MIC OUT
AU 208-4	5	L:CH-2 MIC OUT
AU 208-3	6	CH-2 MIC OUT (X)
AU 208-2	7	CH-2 MIC OUT (Y)
AU 208-1	8	CH-2 MIC OUT (Q)

NR-31

CN257		
HN 461-3	1	TIME CODE HEAD (X)
HN 461-2	2	TIME CODE HEAD (Y)
HN 461-1	3	TIME CODE HEAD (Q)

CN255		
CP 903-4	1	EXT TC IN (X)
CP 903-3	2	EXT TC IN (Q)
CP 903-2	3	TC OUT (X)
CP 903-1	4	TC OUT (Q)

CN251		
AU 217-8	1	N.C.
AU 217-7	2	L:FULL ERASE ON IN
AU 217-6	3	L:SERVO LOCK ON IN
AU 217-5	4	CTL IN (Q)
AU 217-4	5	CTL IN (X)
AU 217-3	6	H:DOLBY SW ON IN
AU 217-2	7	H:DOLBY LED ON IN
AU 217-1	8	L:AUDIO MUTE OUT

CN252		
AU 212-1	12	CH-2 REC SIG (Q)
AU 212-2	11	CH-2 REC SIG OUT (X)
AU 212-3	10	CH-2 DOLBY SIG OUT (Y)
AU 212-4	9	CH-2 DOLBY SIG IN (X)
AU 212-5	8	CH-2 DOLBY SIG (Q)
AU 212-6	7	CH-2 DOLBY PILOT OUT (X)
AU 212-7	6	CH-1 DOLBY PILOT OUT (Q)
AU 212-8	5	CH-1 DOLBY SIG (Q)
AU 212-9	4	CH-1 DOLBY SIG IN (X)
AU 212-10	3	CH-1 DOLBY SIG OUT (Y)
AU 212-11	2	CH-1 REC SIG OUT (X)
AU 212-12	1	CH-1 REC SIG (Q)

CN253		
AU 213-4	9	REG +11.7V IN
AU 213-5	8	GND
AU 213-1	12	L:CH-1 EE IN
AU 213-2	11	L:CH-2 EE IN
AU 213-3	10	H:CH-1 REC IN
AU 213-6	7	H:SP IN
AU 213-7	6	CH-1 DOLBY DET IN (X)
AU 213-8	5	CH-1 DOLBY DET IN (Q)
AU 213-9	4	CH-2 DOLBY DET IN (X)
AU 213-10	3	CH-2 DOLBY DET IN (Q)
AU 213-11	2	H:VIDEO MUTE IN
AU 213-12	1	H:CH-2 REC IN

CN254		
BC 552-5	1	L:REC/ASM IN
BC 552-4	2	H:EXT STOP REC IN
BC 552-3	3	L:TC PB IN
BC 552-2	4	H:EXT RD IN
BC 552-1	5	H:EXT GEN IN

CN256		
SY 523-8	1	TC READER OUT (X)
SY 523-7	2	TC READER OUT (Q)
SY 523-6	3	H:TC EXIST OUT
SY 523-5	4	L:AUDIO MUTE IN
SY 523-4	5	L:RESET IN
SY 523-3	6	INT TC (X) IN
SY 523-2	7	INT TC (Q) IN
SY 523-1	8	N.C.

SW-315B

CN911		
SY 525-2	5	N.C.
SY 525-3	4	H:TC EXIST IN
SY 525-4	3	L:STAND-BY LAMP ON
SY 525-5	2	L:AUTO OFF LAMP
SY 525-6	1	L:REMOTE OUT

CN915		
SV 414-1	3	REG 12V IN
SV 414-2	2	L:TBC OUT
SV 414-3	1	L:EDIT OUT

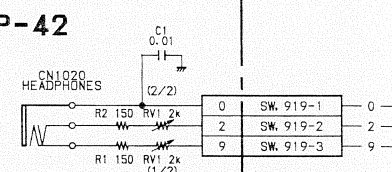
CN916		
MD 168-1	3	L:DUB SW OUT
MD 168-2	2	N.C.
MD 168-3	1	H:SP IN

CN917		
AU 206-1	6	CH-2 MONITOR IN
AU 206-2	5	CH-1 MONITOR IN
AU 206-3	4	MONITOR SELECT OUT (Q)
AU 206-4	3	MONITOR SELECT OUT (X)
AU 206-5	2	CH-1 HEADPHONE IN
AU 206-6	1	CH-2 HEADPHONE IN

CN918		
AU 216-2	2	H:DOLBY LED IN
AU 216-3	1	H:DOLBY SW ON OUT
	3	N.C.

CN912		
HP 2	1	CH-2 HEADPHONE OUT
HP 9	2	CH-1 HEADPHONE OUT
HP 0	3	GND

CH-1
MIX
CH-2

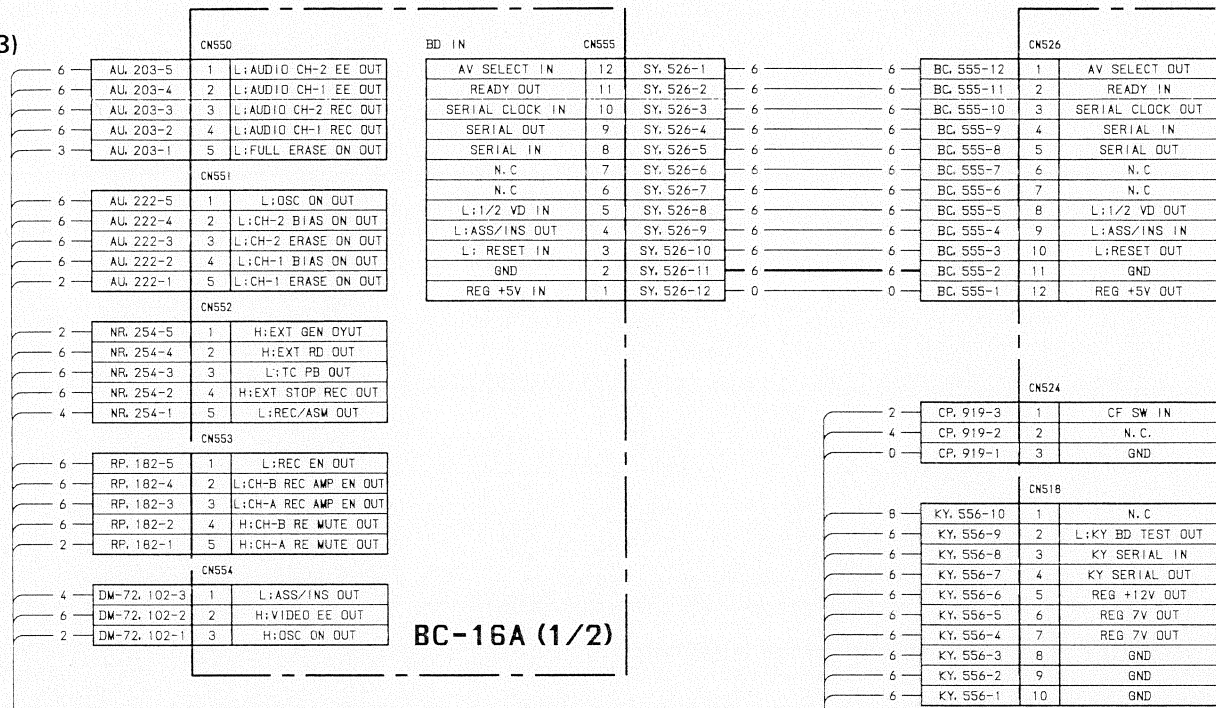
HP-42

NOTE:
The Δ -marked components are critical to safety. Replace only with same components as specified.

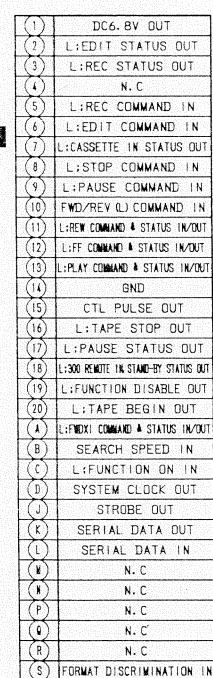
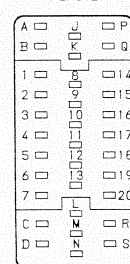
FRAME (2/3)

VO-9850P

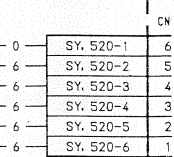
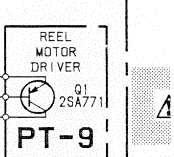
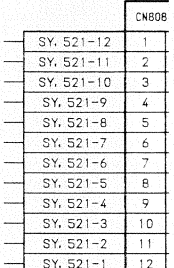
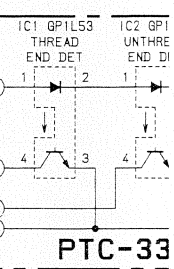
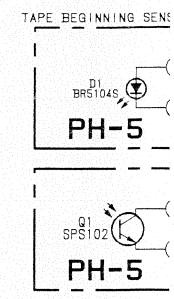
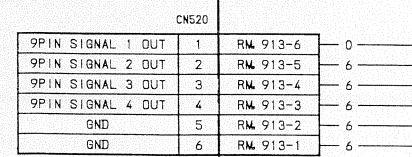
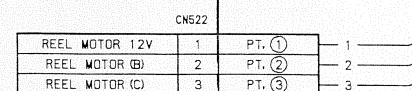
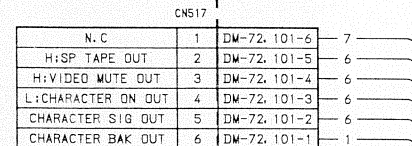
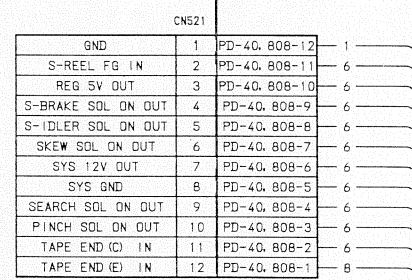
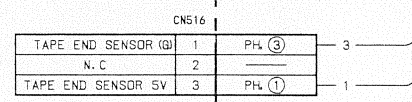
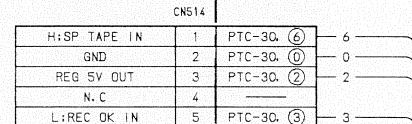
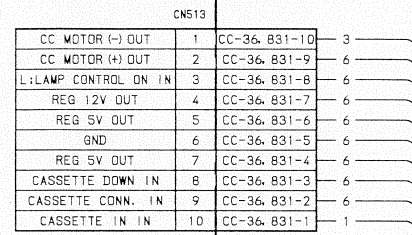
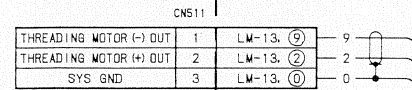
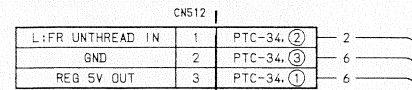
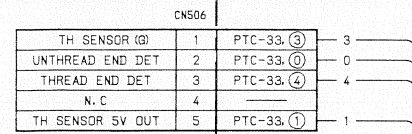
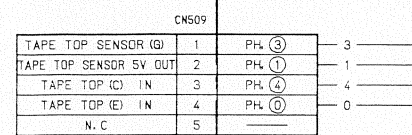
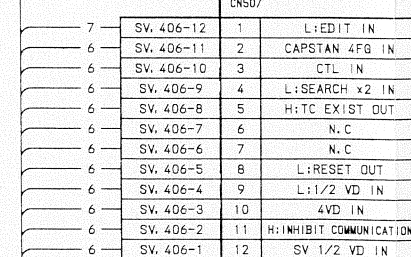
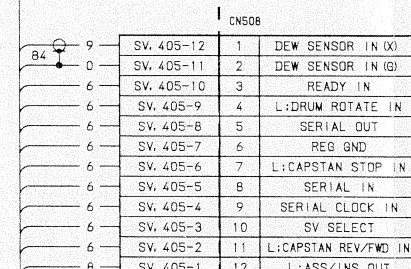
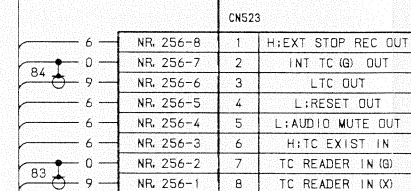
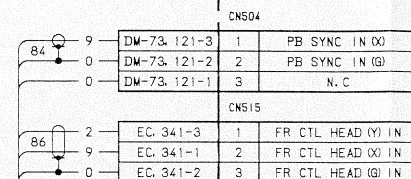
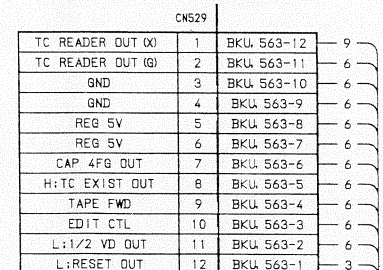
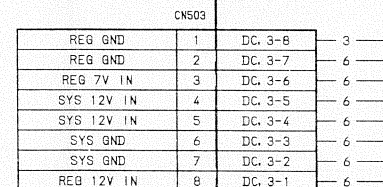
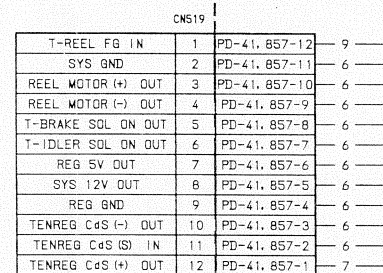
FRAME (3/3)



SY-141B

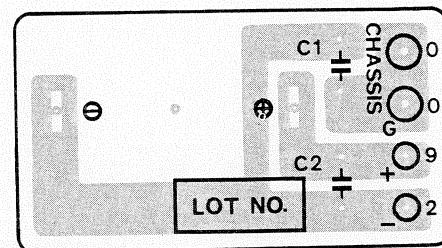
CN1021
REMOTEOPTION
IF INTERFAS 33P
BKUOPTION
TIME CODE READER
BKU

NOTE:
The -marked components are critical to safety. Replace only with same components as specified.



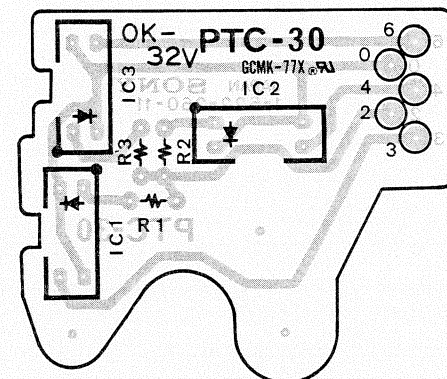
LM-13: THREADING MOTOR
 PT-9: REEL MOTOR DRIVER
 PTC-30: SP, MISS REC DETECTOR
 RM-66: REMOTE CONTROL

PTC-33: UNTHREADEND DETECTOR
 PTC-34: FR STOP DETECTOR



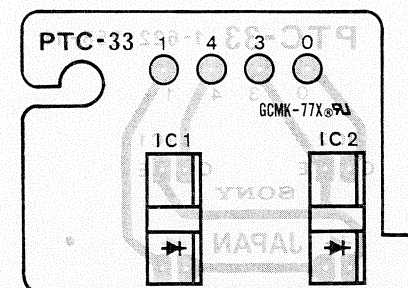
LM-13

— COMPONENT SIDE —
 1-618-600-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P



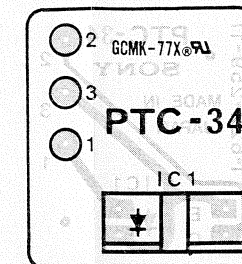
PTC-30

— COMPONENT SIDE —
 1-622-260-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P



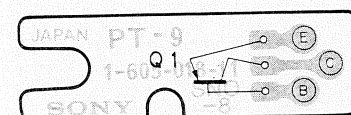
PTC-33

— COMPONENT SIDE —
 1-622-258-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P



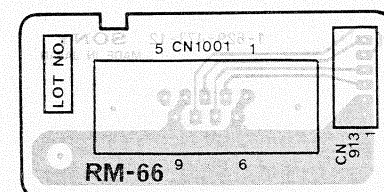
PTC-34

— COMPONENT SIDE —
 1-622-259-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P



PT-9

— COMPONENT SIDE —
 1-605-018-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P



RM-66

— COMPONENT SIDE —
 1-629-473-12
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

SECTION 16

SPARE PARTS AND FIXTURE

16-1. PARTS INFORMATION

- (1) The Δ marked components are critical to safety.
Replace only with the same components as specified.
- (2) Replacement Parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to "improved parts and/or engineering changes" or "standardization of genuine parts".
This manual's exploded views and electrical spare parts list indicate the part numbers of "the standardized genuine parts at the present". Regarding engineering part changes by the engineering department, refer to Sony service bulletins and service manual supplements.
- (3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts lists are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.
- (4) Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- (5) (T) after a spring description is shown on the exploded views in order to indicate the number of spring turns required for the use. (Example) Spring, tension (24T); This spring must be cut at its 24th turn for actual use.

16-2. EXPLODED VIEW

. Exploded views are composed of the following blocks.

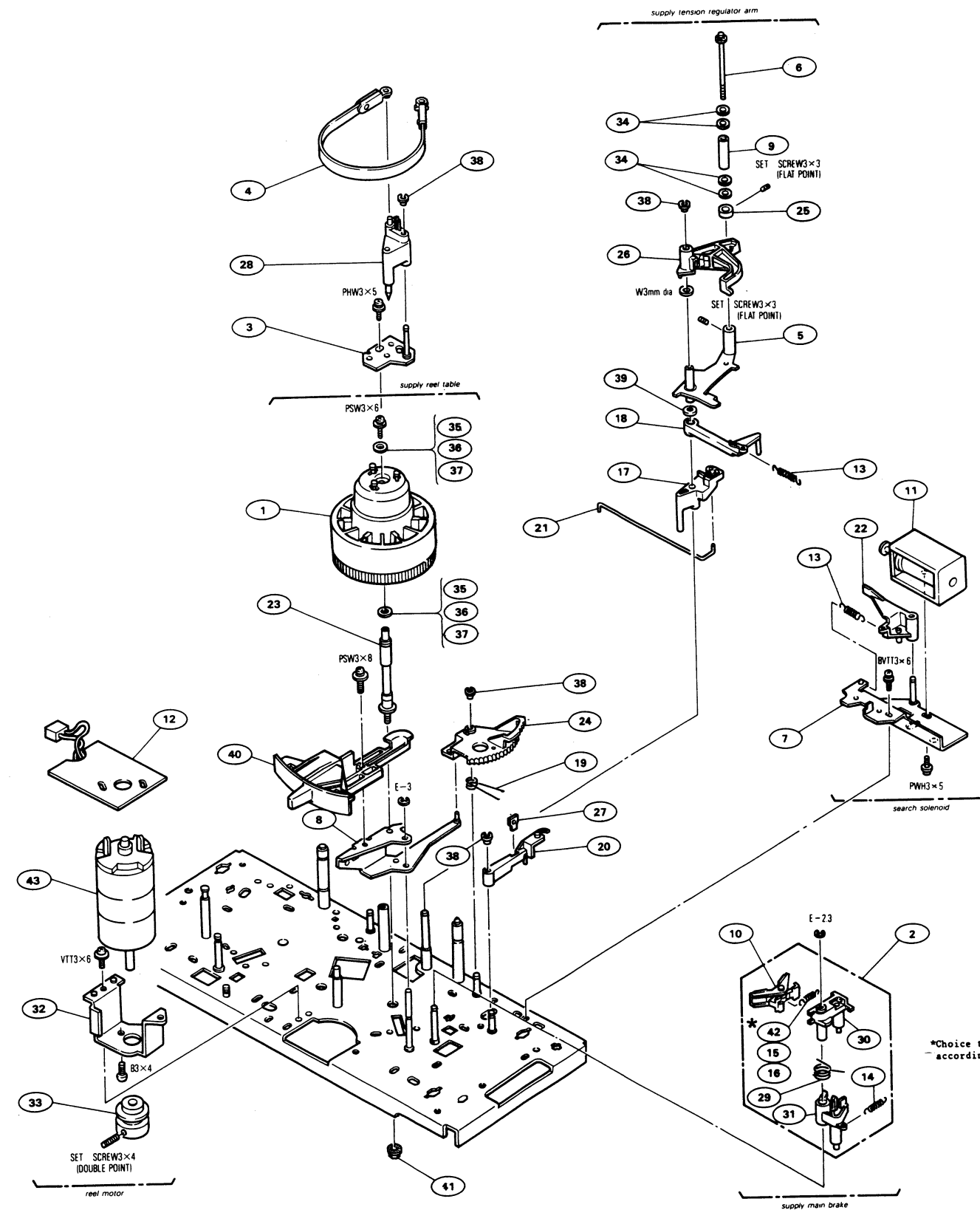
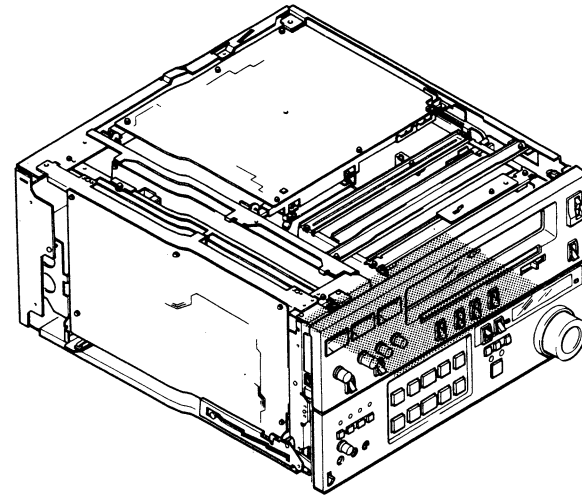
- (1) Reel Chassis (1), Supply Side
 - S Reel Table
 - S Tension Regulator Arm
 - Search Solenoid
 - S Main Brake
 - Reel Motor
- (2) Reel Chassis (2), Take-up Side
 - T Reel Table
 - FF/REW Idler
 - T Main brake
 - T Tension Regulator Arm
 - R Brake
- (3) Reel Chassis (3), Back Side
 - S Idler Solenoid
 - T Idler Solenoid
 - FF/REW Idler Pulley
 - S Brake Solenoid
 - T Brake Solenoid
- (4) Threading Ring Block
 - Threading Ring
 - Gear Box
 - T Correction Guide
 - Tape Beginning Sensor
 - FR Detector
- (5) Threading Arm
 - T Drawer Arm
 - S Drawer Arm
 - S Drawer Roller
 - Drawer Lever
- (6) Drum and Capstan Blocks
 - Head Drum
 - Capstan Motor
 - Audio/CTL Head
 - Tape Guides

- (7) Erase Head Base
 - Erase Head Base
 - S Guard
- (8) Pinch Lever and Pinch Solenoid Blocks
 - Pinch Lever
 - Pinch Roller Pre-set Cam
 - Pinch Solenoid
- (9) Cassette-up Compartment Block
- (10) Function Control
 - Function Control Board
 - Search Dial
- (11) Front Panel and Key Panel Blocks
- (12) Chassis Block (1), Left Side
 - Printed Circuit Boards
- (13) Chassis Block (2), Top
 - Printed Circuit Boards
- (14) Level Control
- (15) Chassis Block (3), Right Side and Rear
 - Printed Circuit Boards
 - Switching Regulator
- (16) Connector Panel
- (17) Chassis Block (4), Bottom
 - Printed Circuit Boards
- (18) Ornamental Panel Block

REEL CHASSIS (1)

REEL CHASSIS (1)

REEL CHASSIS (1), SUPPLY SIDE

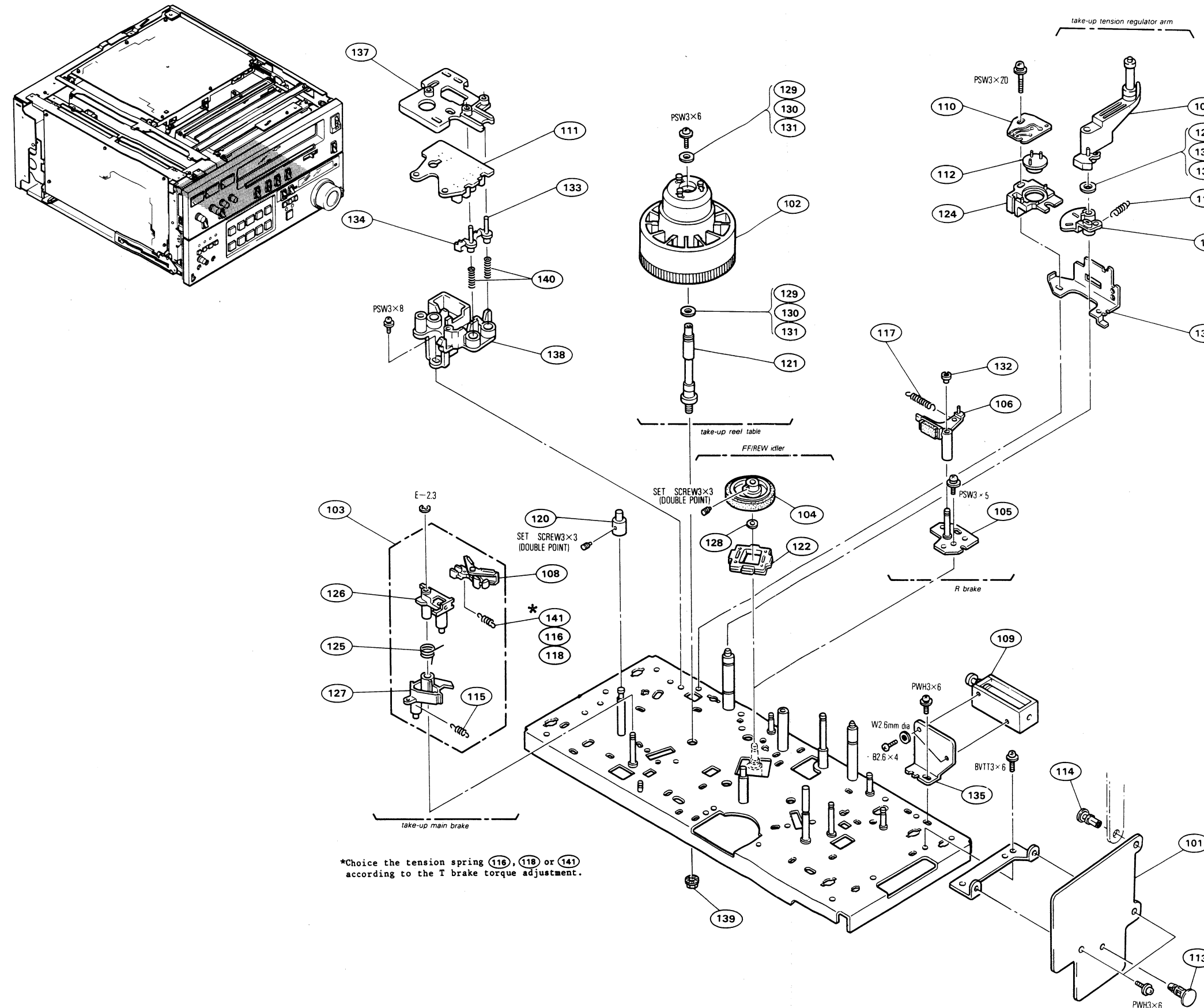


No.	Part No.	SP	Description
1	A-6739-017-A	s	TABLE ASSY, REEL
2	A-6741-038-B	s	BRAKE ASSY, MAIN
3	X-3668-706-0	o	BASE ASSY, S TENSION REGULATOR
4	X-3668-707-0	s	BAND ASSY, S TENSION REGULATOR
5	X-3668-708-0	s	ARM(A) ASSY, S TENSION REGULATOR
6	X-3668-709-0	s	SHAFT (1) ASSY, ROLLER
7	X-3668-717-0	o	BASE ASSY, SEARCH
8	X-3668-725-0	o	ARM (C) ASSY, SKEW
9	X-3668-727-0	s	GUIDE ASS'Y, TAPE
10	X-3668-749-0	s	HOLDER ASSY, LINING
11	1-454-417-41	s	SOLENOID, PLUNGER
12	1-618-873-11	o	PRINTED CIRCUIT BOARD, RM-39
13	3-534-238-XX	s	SPRING, TENSION (23T)
14	3-535-369-XX	s	SPRING, TENSION (12T)
15	3-548-124-00	s	SPRING, TENSION
16	3-555-210-00	s	SPRING, TENSION
17	3-668-787-02	s	ARM, S DETECTION
18	3-668-794-00	o	ARM (A), SKEW
19	3-668-795-00	s	SPRING
20	3-668-797-00	o	ARM, SKEW LOCK
21	3-668-804-00	s	LINK, DETECTION TENSION
22	3-668-808-00	s	ARM, FWD, SEARCH
23	3-668-827-00	o	SHAFT (S), REEL
24	3-668-835-00	s	ARM (B), SKEW
25	3-668-874-00	s	FLANGE (1), LOWER
26	3-668-936-00	s	ARM (B), S TENSION REGULATOR
27	3-668-937-00	s	CLAW, SKEW LOCK
28	3-668-939-00	o	ARM, BAND LOCK
29	3-668-966-00	s	SPRING
30	3-668-970-00	o	ARM, BRAKE
31	3-668-971-00	o	ARM, BRAKE RELEASE
32	3-672-743-01	o	BRACKET, MOTOR
33	3-672-744-01	s	PULLEY (R), MOTOR
34	3-701-438-01	s	WASHER, POLY 2.5MM DIA., 0.13T
35	3-701-444-01	s	WASHER, POLY 6MM DIA., 0.13T
36	3-701-444-11	s	WASHER, POLY 6MM DIA., 0.25T
37	3-701-444-21	s	WASHER, POLY 6MM DIA., 0.50T
38	3-703-074-00	s	CAP 3, SHAFT
39	3-718-389-01	s	WASHER (DIA. 3), SUS
40	3-733-619-01	s	LEVER, SKEW
41	4-304-749-00	o	NUT, FLANGE
42	4-907-156-01	s	SPRING, TENSION
43	8-835-178-01	s	MOTOR, DC FN30-T26N1E

REEL CHASSIS (2)

REEL CHASSIS (2)

REEL CHASSIS (2), TAKE-UP SIDE



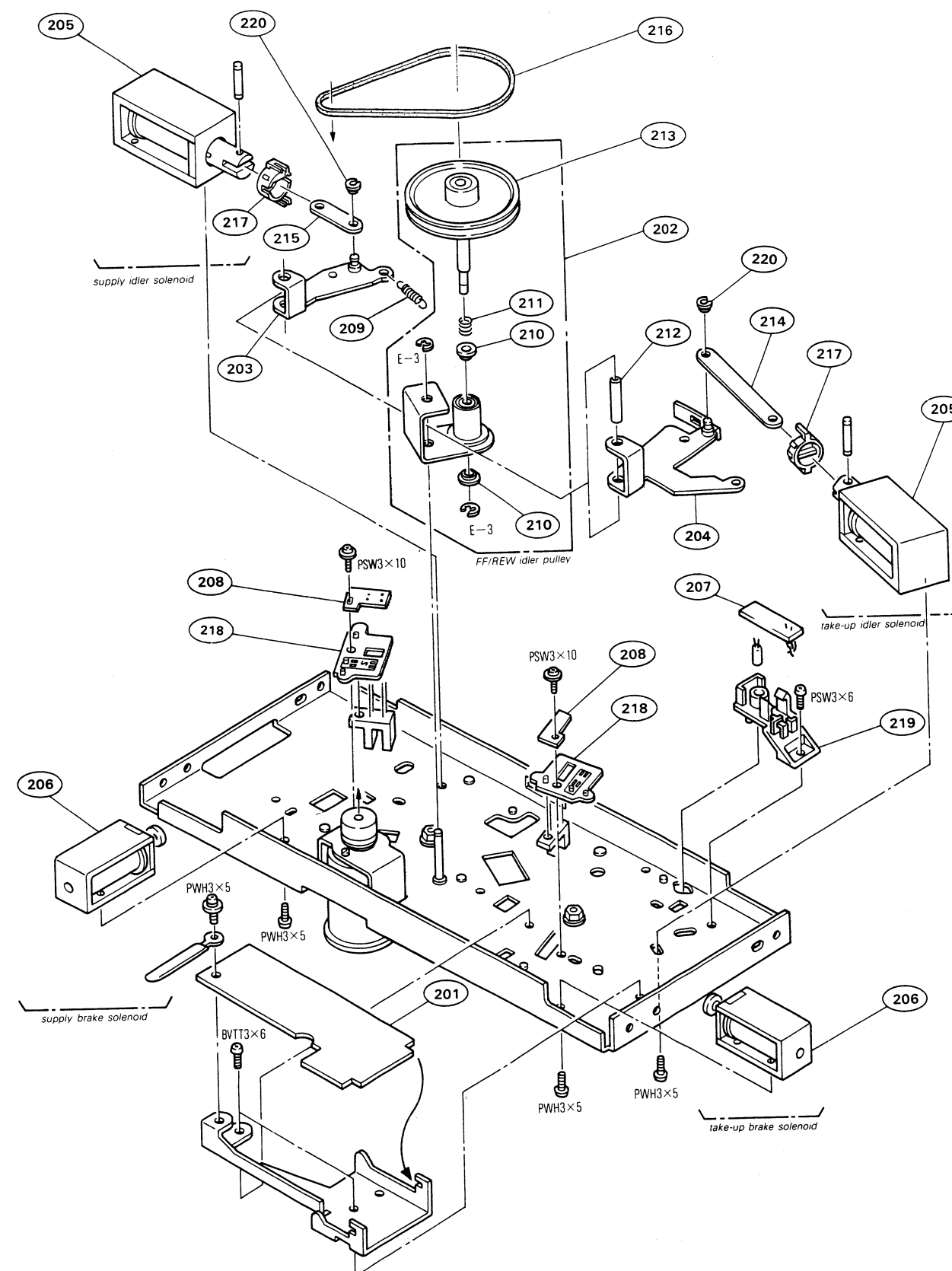
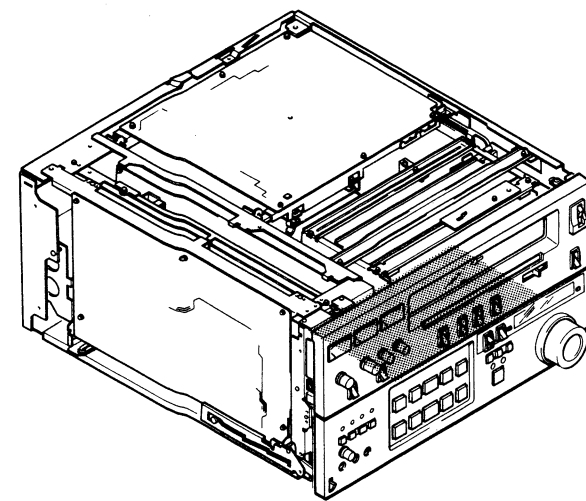
*Choice the tension spring (116), (118) or (141) according to the T brake torque adjustment.

No.	Part No.	SP	Description
101	A-6725-569-A	o	MOUNTED CIRCUIT BOARD, PD-40
102	A-6739-017-A	s	TABLE ASS'Y, REEL
103	A-6741-038-B	s	BRAKE ASS'Y, MAIN
104	X-3646-026-0	s	IDLER ASS'Y, FF
105	X-3668-705-0	o	BASE ASS'Y, R BRAKE
106	X-3668-737-0	s	BRAKE ASS'Y, R
107	X-3668-738-0	s	ARM ASS'Y, T TENSION REGULATOR
108	X-3668-749-0	s	HOLDER ASS'Y, LINING
109	1-454-446-11	s	SOLENOID, PLUNGER
110	1-618-599-11	o	PRINTED CIRCUIT BOARD, SE-46
111	1-622-260-11	o	PRINTED CIRCUIT BOARD, PTC-30
112	1-806-232-21	s	DETECTOR MB-1102/S.N
113	2-382-416-01	o	SUPPORT, PC
114	3-531-576-11	s	REVETT
115	3-535-369-XX	s	SPRING, TENSION (12T)
116	3-548-124-00	s	SPRING, TENSION
117	3-549-861-00	s	SPRING, TENSION
118	3-555-210-00	s	SPRING, TENSION
119	3-642-427-00	s	SPRING, TENSION
120	3-668-031-00	o	RETAINER (UPPER), CASSETTE
121	3-668-766-00	o	SHAFT (T), REEL
122	3-668-780-00	o	CUSHION, IDLER
123	3-668-788-00	s	ARM, T DETECTION
124	3-668-789-00	o	HOLDER, BRIDGE, PHOTO
125	3-668-966-00	s	SPRING
126	3-668-970-00	o	ARM, BRAKE
127	3-668-971-00	o	ARM, BRAKE RELEASE
128	3-701-441-21	s	WASHER, POLY 4MM DIA., 0.50T
129	3-701-444-01	s	WASHER, POLY 6MM DIA., 0.13T
130	3-701-444-11	s	WASHER, POLY 6MM DIA., 0.25T
131	3-701-444-21	s	WASHER, POLY 6MM DIA., 0.50T
132	3-703-074-00	s	CAP 3, SHAFT
133	3-718-307-01	s	ACTUATOR, TRC
134	3-718-307-11	s	ACTUATOR, TRC
135	3-718-308-01	o	BRAKET, SK SOLENOID
136	3-718-326-01	o	STOPPER (SP)
137	3-718-342-01	o	TRC-BOX (UPPER)
138	3-718-343-01	o	TRC-BOX (LOWER)
139	4-304-749-00	o	NUT, FLANGE
140	4-858-779-00	s	SPRING, COMPRESSION
141	4-907-156-01	s	SPRING, TENSION

REEL CHASSIS (3)

REEL CHASSIS (3)

REEL CHASSIS (3), BACK SIDE

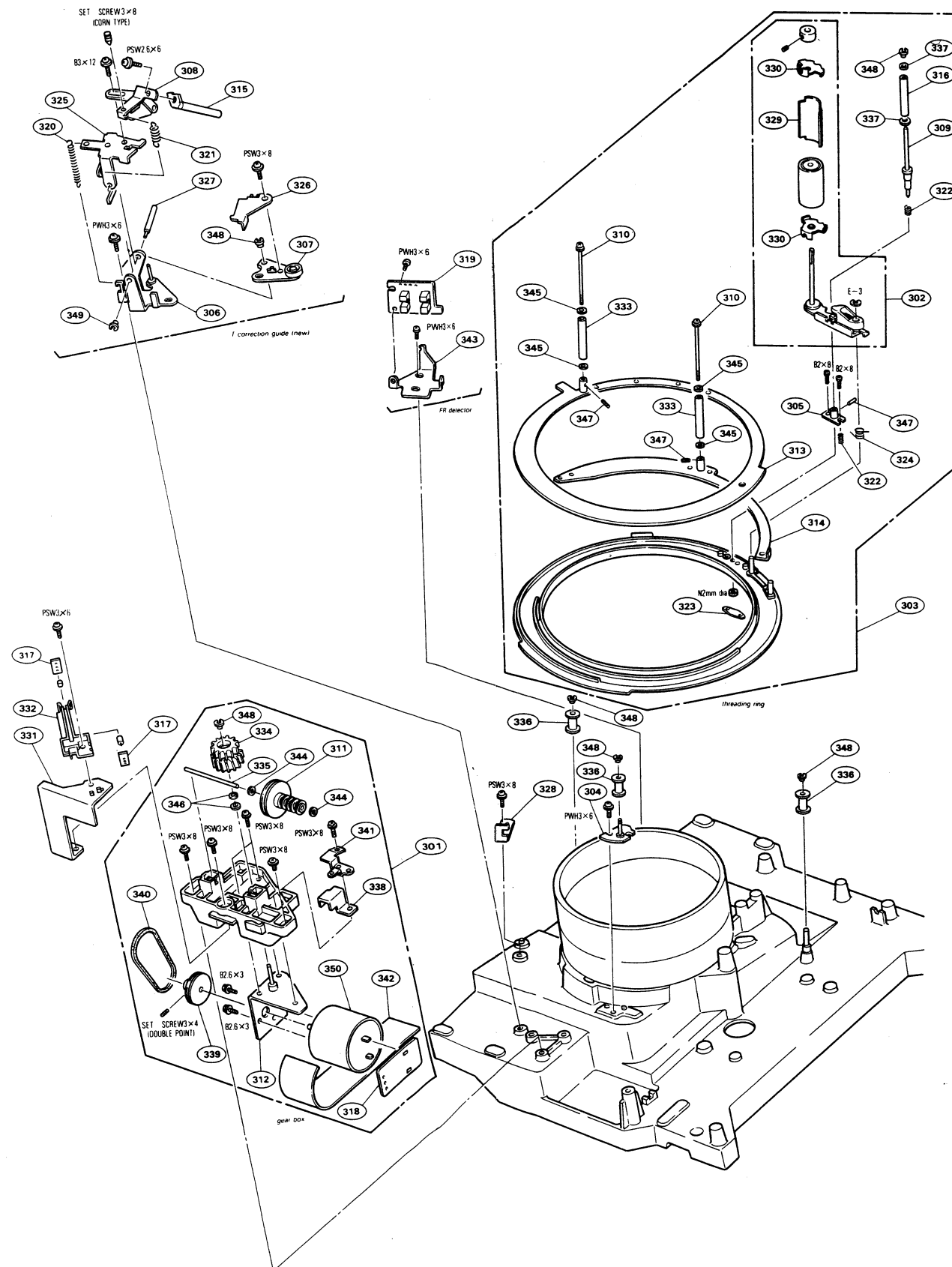
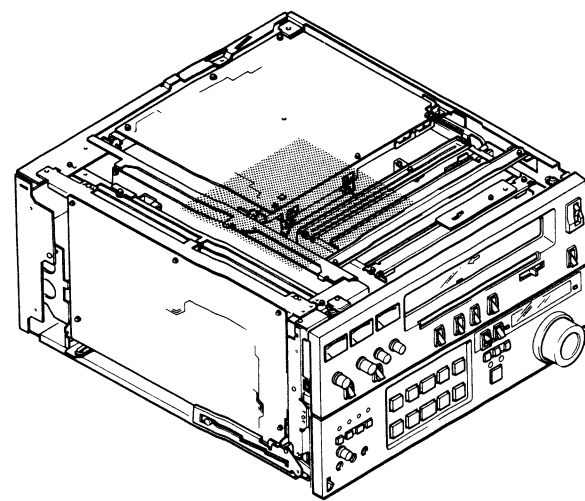


No.	Part No.	SP	Description
201	A-6725-570-A	o	MOUNTED CIRCUIT BOARD, PD-41
202	A-6740-069-B	s	PULLEY BLOCK, ASS'Y, IDLER
203	X-3668-703-0	o	LEVER ASS'Y, S
204	X-3668-704-0	o	LEVER ASS'Y, T
205	1-454-415-11	s	SOLENOID, PLUNGER
206	1-454-417-41	s	SOLENOID, PLUNGER
207	1-618-597-11	o	PRINTED CIRCUIT BOARD, TG-22
208	1-622-218-11	o	PRINTED CIRCUIT BOARD, PTC-35
209	3-437-452-00	s	SPRING, TENSION
210	3-650-512-00	s	COLLAR, (A)
211	3-651-572-00	s	SPRING, COMPRESSION
212	3-668-048-11	o	SPACER (DIA. 4x20)
213	3-668-772-00	s	SHAFT, IDLER PULLEY
214	3-668-781-00	o	JOINT, T
215	3-668-782-00	o	JOINT, S
216	3-668-785-00	s	BELT (67x2)
217	3-668-826-00	s	RETAINER, PIN, SOLENOID
218	3-668-828-02	o	BRACKET, PS
219	3-672-752-01	o	HOLDER, LED
220	3-703-074-00	s	CAP 3, SHAFT

THREADING RING BLOCK

THREADING RING BLOCK

THREADING RING BLOCK

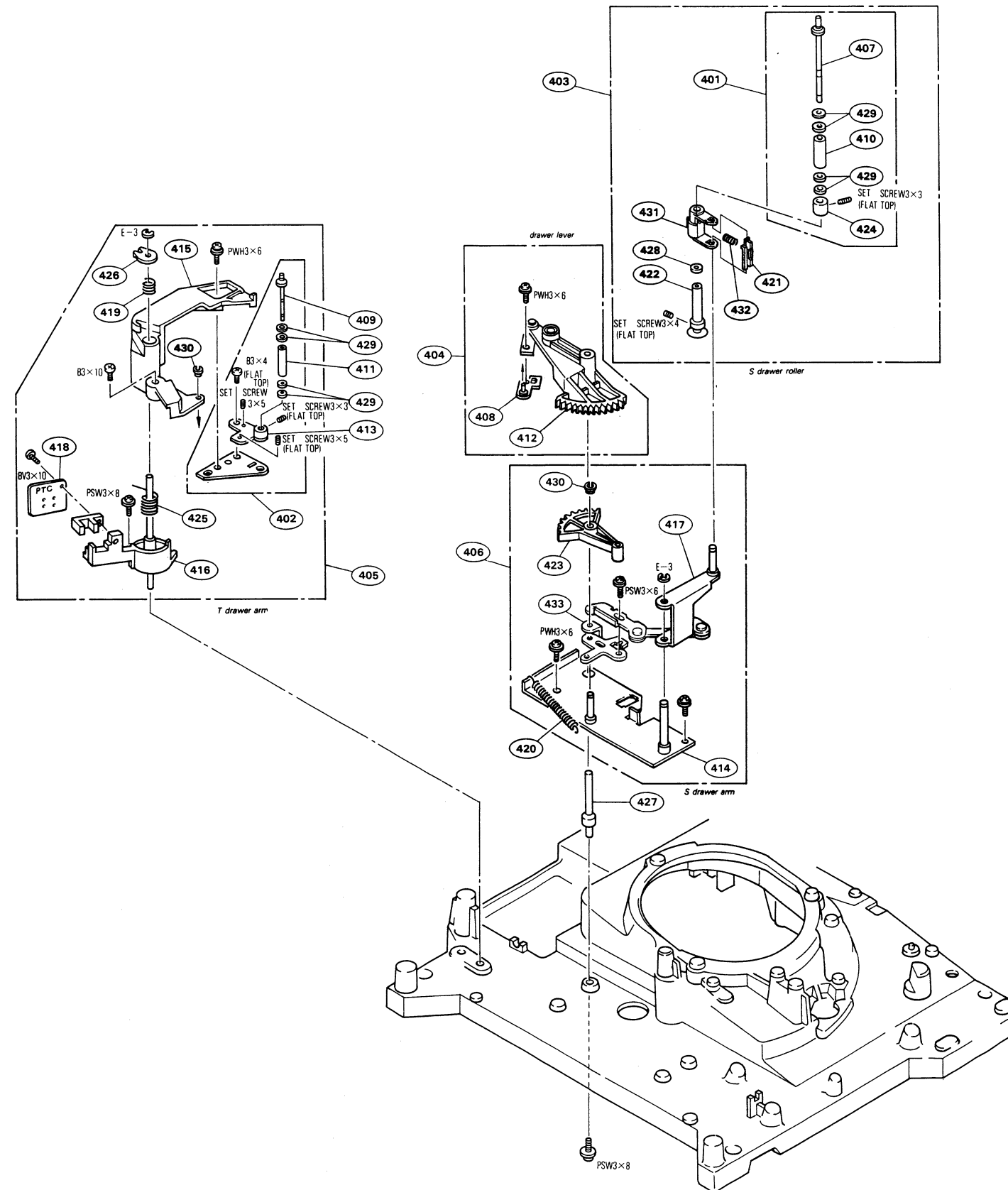
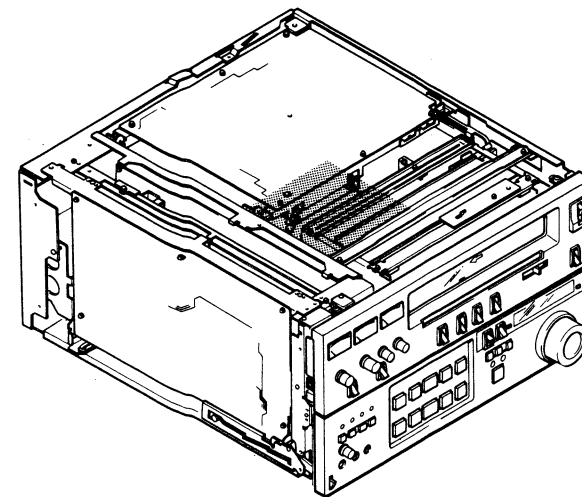


No.	Part No.	SP	Description
301	A-6750-219-A	s	BOX BLOCK ASS'Y, GEAR
302	A-6750-223-A	s	PINCH ROLLER BLOCK ASS'Y
303	A-6750-238-A	s	RING BLOCK ASSY, MAIN
304	X-3668-719-0	o	ROLLER ASS'Y, RING
305	X-3668-720-0	o	BASE ASS'Y, ROLLER, PRECEDING
306	X-3668-721-0	o	CHASSIS ASS'Y, GUIDE
307	X-3668-722-0	s	LOCKER ASS'Y, FR
308	X-3668-723-2	o	ARM ASS'Y, GUIDE, T CORRECTION
309	X-3668-724-3	s	SHAFT ASS'Y, ROLLER, PRECEDING
310	X-3668-733-0	s	SHAFT ASS'Y, SR GUIDE
311	X-3668-743-0	s	PULLEY ASS'Y, WORM
312	X-3672-704-1	o	BRACKET ASS'Y, MOTOR
313	X-3672-710-1	o	RING (UPPER) ASS'Y, SUB
314	X-3672-711-1	o	RING (LOWER) ASS'Y, SUB
315	X-3672-718-2	s	SHAFT ASS'Y, GUIDE
316	X-3718-303-1	s	GUIDE ASS'Y (T), TAPE
317	1-603-737-00	o	PRINTED CIRCUIT BOARD, PH-5
318	1-618-600-11	o	PRINTED CIRCUIT BOARD, LM-13
319	1-622-258-11	o	PRINTED CIRCUIT BOARD, PTC-33
320	3-143-067-00	s	SPRING, TENSION
321	3-437-289-00	s	SPRING, TENSION
322	3-634-196-00	s	SPRING
323	3-668-743-00	o	NUT, PLATE, ROLLER, PRECEDING
324	3-668-745-00	s	SPRING
325	3-668-749-02	o	ARM (A), GUIDE, T CORRECTION
326	3-668-753-00	o	PLATE, ADJUSTMENT, FR LOCKER
327	3-668-754-00	o	SHAFT, GUIDE ARM, T CORRECTION
328	3-668-755-00	o	PLATE, STOPPER, SR
329	3-668-888-00	o	COVER, PINCH
330	3-668-889-00	o	CAP, PINCH ROLLER
331	3-668-900-00	o	BRACKET, T SENSOR
332	3-668-901-00	s	HOLDER, T PHOTO
333	3-668-919-00	s	ROLLER, SR GUIDE
334	3-668-947-00	s	PINION, L
335	3-668-948-00	o	SHAFT, WORM
336	3-668-963-03	s	ROLLER, RING
337	3-669-926-01	s	WASHER (3), THRUST
338	3-669-960-00	o	RETAINER, SHAFT
339	3-672-736-01	s	PULLEY, LM
340	3-672-737-01	s	BELT, SQUARE
341	3-672-738-01	o	PLATE, GROUND, SLED
342	3-672-739-01	o	BELT, LM SHIELD
343	3-672-790-01	o	BRACKET, FR DETECTION
344	3-701-437-21	s	WASHER, POLY 2MM DIA., 0.50T
345	3-701-438-11	s	WASHER, POLY 2.5MM DIA., 0.25T
346	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.50T
347	3-701-505-00	s	SET SCREW, DOUBLE POINT 3x3
348	3-703-074-00	s	CAP 3, SHAFT
349	3-703-075-00	s	CAP 2, SHAFT
350	1-541-376-11	s	MOTOR, DC (DNR-4700A)

THREADING ARM

THREADING ARM

THREADING ARM

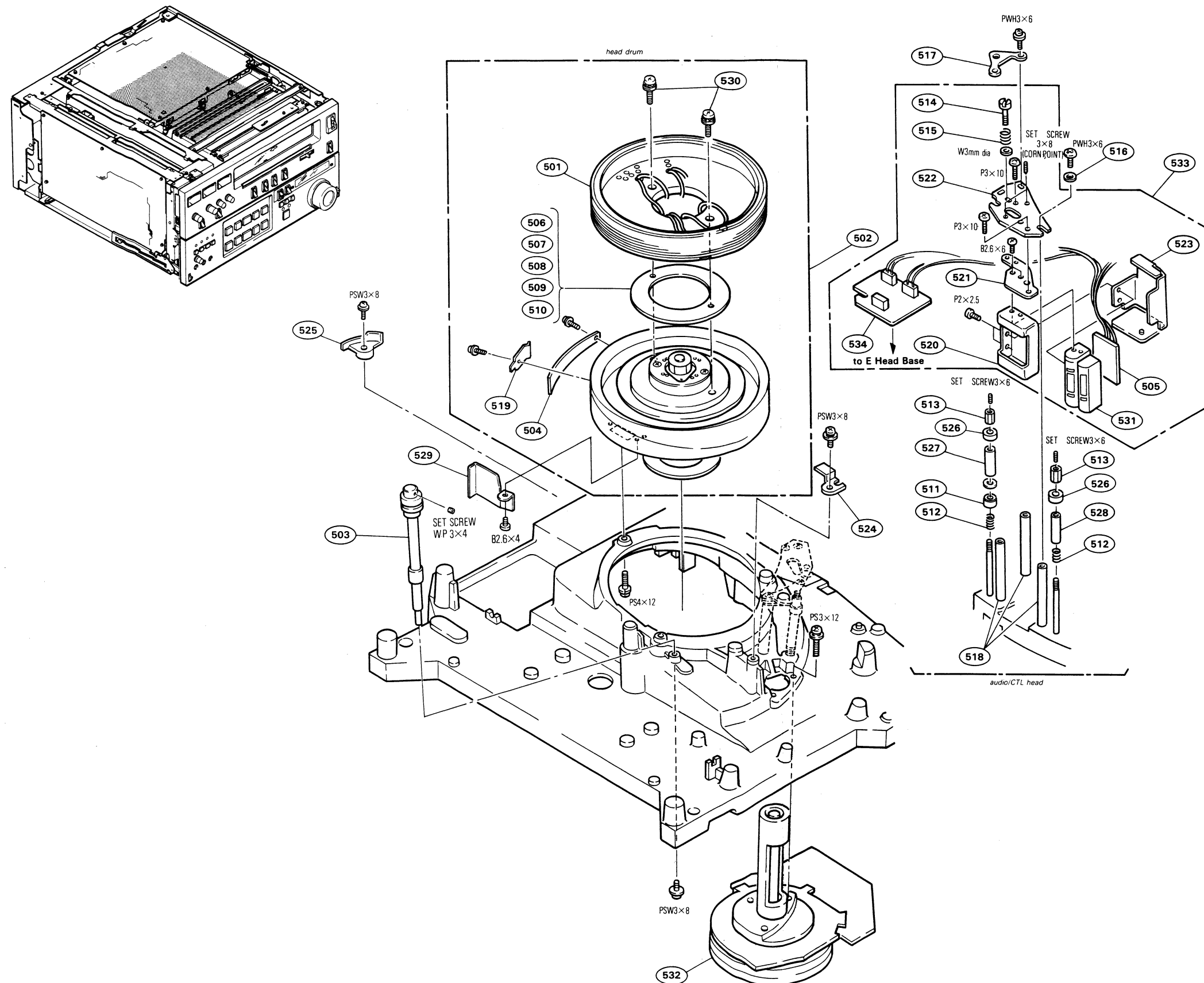


No.	Part No.	SP	Description
401	A-6746-034-A	s	ROLLER BLOCK ASS'Y (2), DRAWER
402	A-6746-045-A	s	ROLLER BLOCK ASS'Y, T GUIDE
403	A-6746-057-A	s	ROLLER BLOCK ASS'Y, S DRAWER
404	A-6750-202-A	o	LEVER BLOCK ASS'Y, DRAWER
405	A-6750-218-A	o	ARM BLOCK ASS'Y, T DRAWER
406	A-6750-225-F	o	ARM BLOCK, ASS'Y, DRAWER, S
407	X-3668-712-3	s	SHAFT (2) ASS'Y, ROLLER
408	X-3668-713-0	o	LINK (B) ASS'Y, DRIVING
409	X-3668-716-0	s	SHAFT (3) ASS'Y, ROLLER
410	X-3668-718-0	s	GUIDE ASS'Y, TAPE
411	X-3668-727-0	s	GUIDE ASS'Y, TAPE
412	X-3668-729-0	s	LEVER ASS'Y, DRAWER
413	X-3672-705-1	o	PLATE ASS'Y, GUIDE, T
414	X-3672-706-1	o	BASE ASS'Y, S DRAWER ARM
415	X-3672-708-1	o	ARM ASS'Y, T DRAWER
416	X-3718-305-1	o	RETAINER ASS'Y, ARM, T DRAWER
417	X-3718-615-3	o	ARM ASS'Y, DRAWER, S
418	1-622-259-11	o	PRINTED CIRCUIT BOARD, PTC-34
419	3-534-854-00	s	SPRING, COMPRESSION
420	3-540-506-00	s	SPRING, TENSION
421	3-668-718-00	s	RETAINER, SPRING, S DRAWER
422	3-668-719-00	s	HOLDER (L), S GUIDE
423	3-668-721-00	s	ARM, S DRIVING
424	3-668-724-00	o	FLANGE (2), LOWER
425	3-668-734-00	o	SPRING
426	3-668-735-00	s	RETAINER, SPRING
427	3-668-760-00	o	SHAFT, DRAWER LEVER
428	3-669-946-00	s	RING (P4), O
429	3-701-438-01	s	WASHER, POLY 2.5MM DIA., 0.13T
430	3-703-074-00	s	CAP 3, SHAFT
431	3-718-701-02	s	HOLDER (M), S GUIDE
432	3-718-773-01	s	SPRING, COMPRESSION
433	3-734-304-01	o	LIMITER, S DRAWER

DRUM AND CAPSTAN BLOCKS

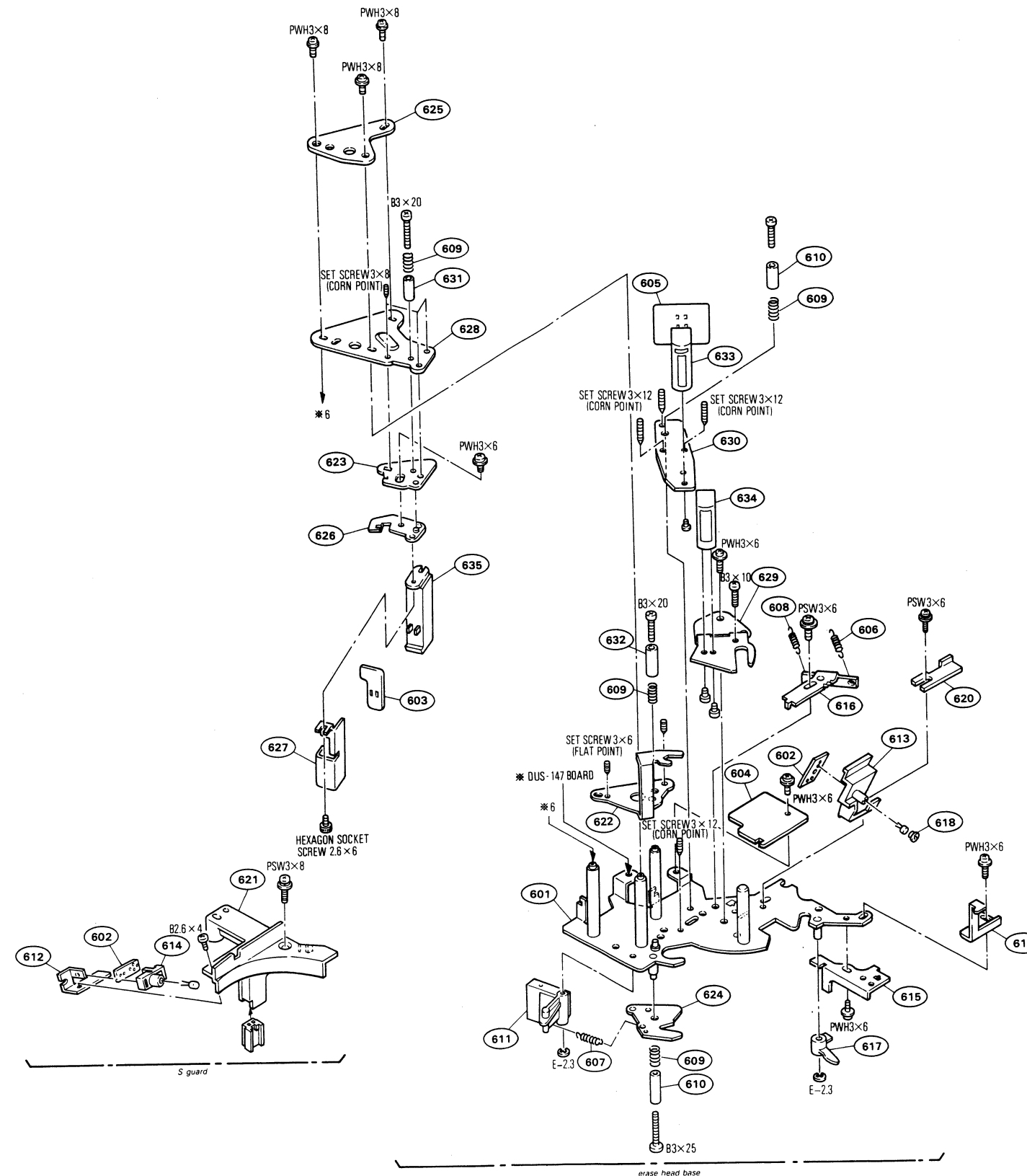
DRUM AND CAPSTAN BLOCKS

DRUM AND CAPSTAN BLOCKS



No.	Part No.	SP	Description
501	A-6709-617-A	s	UPPER DRUM ASS'Y, DUR-44-R
502	A-6709-675-A	s	HEAD DRUM ASS'Y, DUH-44B-R
503	A-6746-054-A	s	ROLLER ASS'Y, GUIDE, TAPE
504	1-586-633-00	s	DETECTOR, DEW
505	1-615-924-11	o	PRINTED CIRCUIT BOARD, DUS-92
506	3-630-029-01	s	SPACER, FLANGE (0.01T)
507	3-630-029-11	s	SPACER, FLANGE (0.02T)
508	3-630-029-21	s	SPACER, FLANGE (0.05T)
509	3-630-029-31	s	SPACER, FLANGE (0.1T)
510	3-630-029-41	s	SPACER, FLANGE (0.03T)
511	3-641-612-00	s	GUIDE, TAPE
512	3-641-615-00	s	SPRING, COMPRESSION
513	3-641-616-00	s	NUT, TAPE GUIDE ADJUSTMENT
514	3-641-621-00	o	SCREW, HEAD ADJUSTMENT
515	3-641-622-00	s	SPRING, COMPRESSION
516	3-645-076-00	o	WASHER, M-REEL S
517	3-647-815-00	o	PLATE, ADJUSTMENT, CTL HEAD
518	3-647-816-00	o	POLE, SUPPORT, CTL BRACKET
519	3-655-631-00	o	TERMINAL, GROUND
520	3-655-675-02	o	CASE (F), AU
521	3-655-676-01	o	BRACKET (A), CTL HEAD
522	3-655-677-01	o	BRACKET (B), CTL HEAD
523	3-655-678-03	o	CASE (B), AU
524	3-660-102-00	s	GUIDE, TAPE
525	3-672-762-01	o	PIN, DRUM
526	3-672-763-01	o	CAM, P OFFSET PREVENTION
527	3-688-807-01	s	FLANGE, TAPE GUIDE
528	3-718-388-01	s	GUIDE (TG-4N), TAPE
529	3-733-655-01	o	SHIELD, RPCN
530	7-682-563-04	s	SCREW +B4x12
531	8-825-578-22	s	HEAD, ACE
532	8-835-258-02	s	MOTOR, DC BHF-1915B
533	A-6736-071-B	o	HEAD BLOCK ASS'Y, AUDIO
534	1-622-261-11	o	PRINTED CIRCUIT BOARD, DUS-147

ERASE HEAD BASE

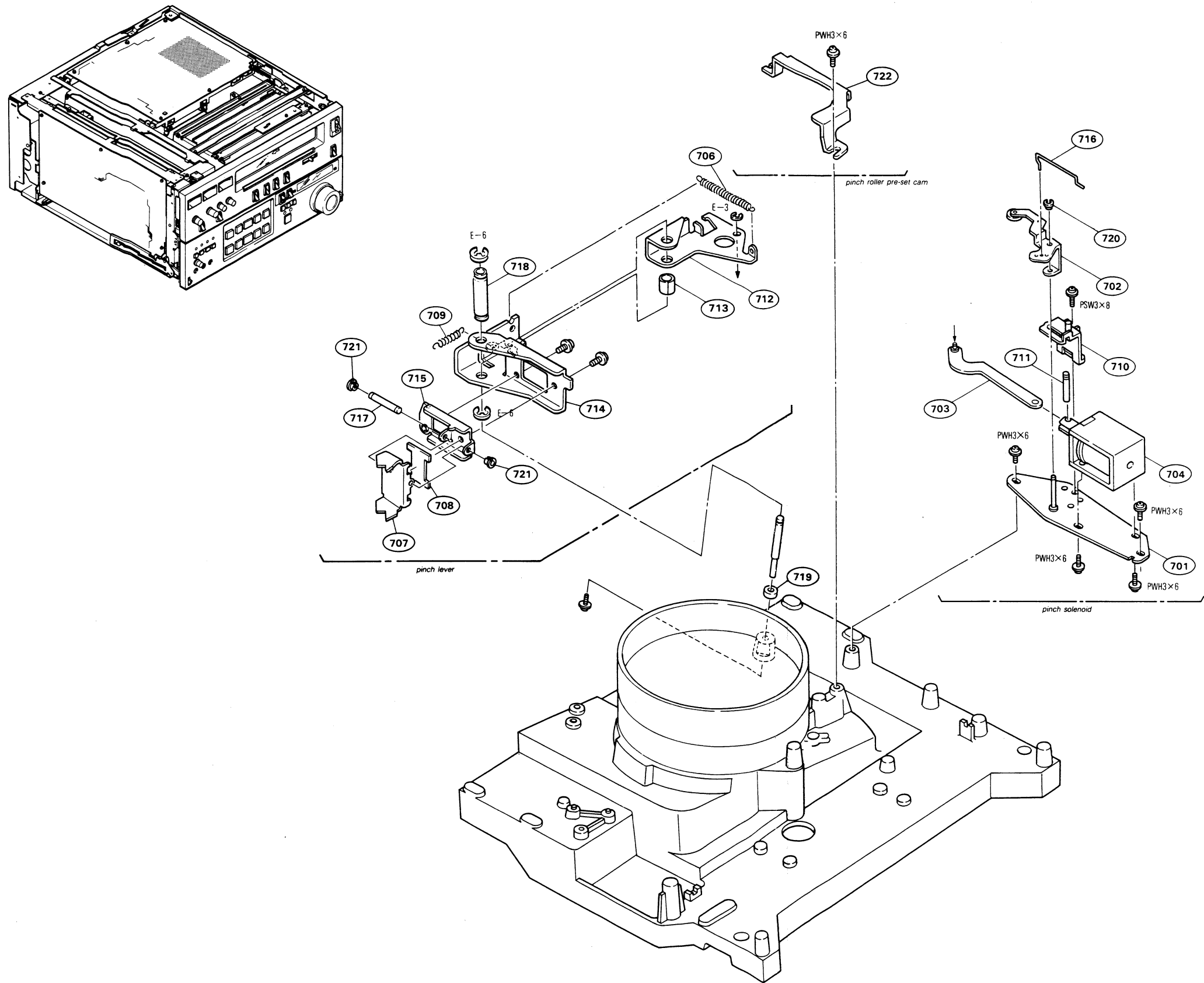


No.	Part No.	SP	Description
601	X-3733-605-1	o	BASE ASS'Y, E HEAD
602	1-603-737-00	o	PRINTED CIRCUIT BOARD, PH-5
603	1-622-726-11	o	PRINTED CIRCUIT BOARD, HN-84
604	1-629-474-11	o	PRINTED CIRCUIT BOARD, HN-130
605	1-629-475-11	o	PRINTED CIRCUIT BOARD, EC-32
606	3-534-238-XX	s	SPRING, TENSION (23T)
607	3-535-531-00	s	SPRING, TENSION
608	3-538-102-00	s	SPRING, TENSION
609	3-637-335-00	s	SPRING, COMPRESSION (C)
610	3-657-086-00	o	SPACER (3x20)
611	3-668-708-00	o	ARM, DRIVING, CORRECTION GUIDE
612	3-668-809-02	o	BRACKET, HOLDER
613	3-668-832-02	o	HOLDER (S)
614	3-668-837-00	o	HOLDER, LED
615	3-668-859-00	o	STOPPER, RING
616	3-668-860-00	o	HOOK, SPRING, TENSION REGULATOR
617	3-668-894-00	o	LEVER, RELEASE
618	3-669-920-00	o	COVER, S PHOTO
619	3-669-963-00	o	SPRING, LEAF, GROUND
620	3-669-964-00	o	PLATE, GROUND
621	3-672-764-03	s	GUARD, S
622	3-718-622-01	s	HOLDER (UPPER), S
623	3-718-623-01	o	PLATE, TC
624	3-718-624-01	s	HOLDER (LOWER), S
625	3-718-641-01	o	PLATE, ADJUSTMENT, Y
626	3-718-644-01	o	PLATE, BALANCE
627	3-718-646-01	o	SHIELD, TC HEAD
628	3-718-649-01	o	PLATE, Y
629	3-733-609-01	o	BASE, E HEAD
630	3-733-610-01	o	BASE, CTL
631	4-855-006-01	s	SPACER (3x12)
632	4-855-006-11	s	SPACER (3x14)
633	8-825-514-20	s	HEAD, CTL (PP170-58)
634	8-825-544-20	s	HEAD, ERASE
635	8-825-771-31	s	HEAD, TIME CODE PP295-58

PINCH LEVER AND PINCH SOLENOID BLOCKS

PINCH LEVER AND PINCH SOLENOID BLOCKS

PINCH LEVER AND PINCH SOLENOID BLOCKS

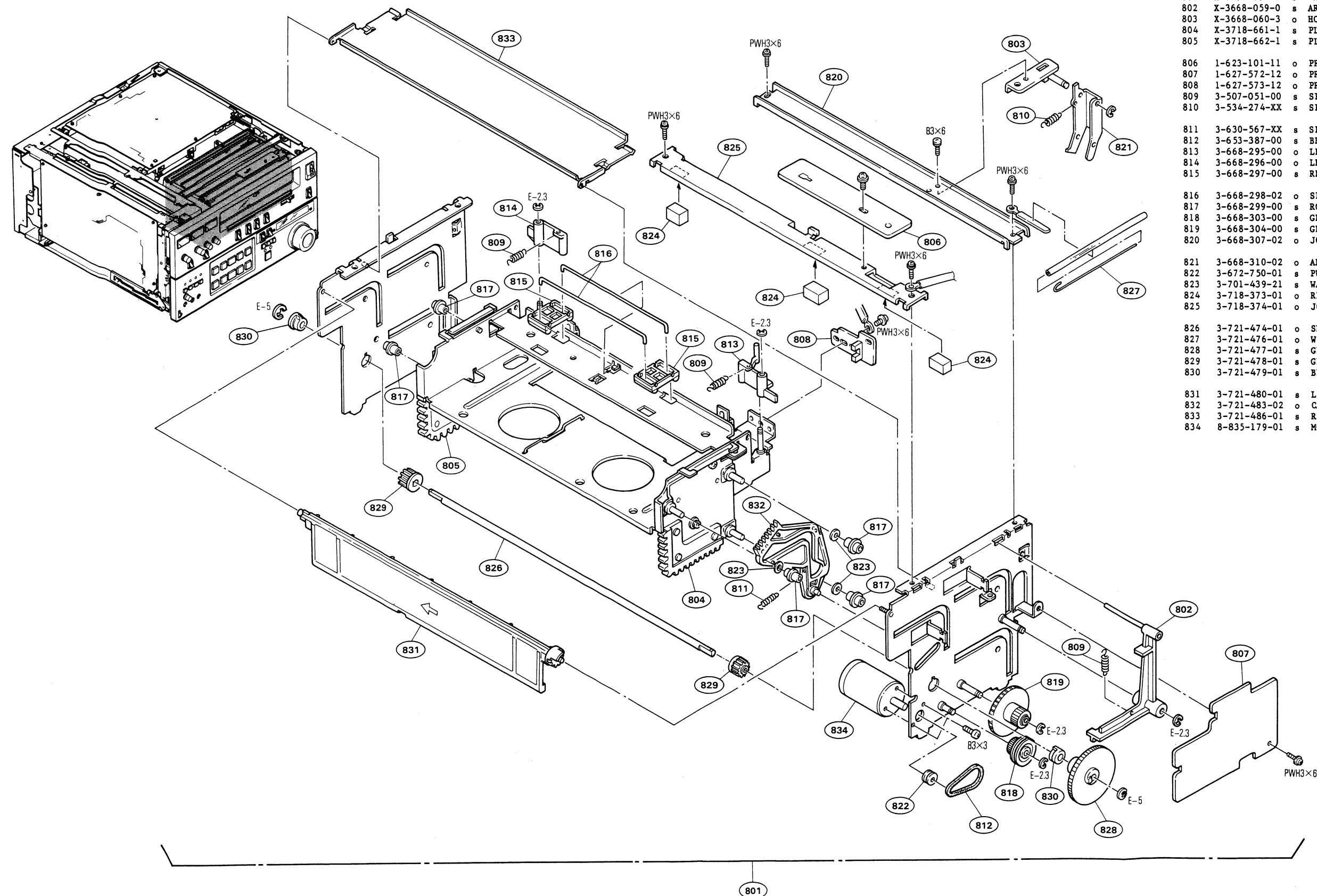


No.	Part No.	SP	Description
701	X-3668-734-0	o	BASE ASS'Y, PINCH PRESS
702	X-3668-735-3	s	LEVER ASS'Y, RESERVE PRESS
703	X-3668-736-0	o	JOINT ASS'Y
704	1-454-416-31	s	SOLENOID, PLUNGER
706	3-610-265-02	s	SPRING
707	3-642-518-00	o	LEVER, PINCH
708	3-642-519-00	o	SPRING
709	3-645-392-00	s	SPRING, TENSION
710	3-668-863-00	s	GUIDE, ARBOR
711	3-668-864-00	s	PIN, SOLENOID
712	3-668-865-00	o	LEVER (B), PINCH PRESS
713	3-668-867-00	o	SPACER (8x9)
714	3-668-868-00	o	LEVER (A), PINCH PRESS
715	3-668-883-00	o	PLATE, ADJUSTMENT, PINCH PRESS
716	3-668-884-03	o	JOINT, RESERVE PRESS
717	3-668-895-00	o	SHAFT
718	3-668-896-00	o	SLEEVE, PRESS LEVER, PINCH
719	3-672-733-01	o	TABLE, SHAFT, PRESS LEVER
720	3-703-074-00	s	CAP 3, SHAFT
721	3-703-075-00	s	CAP 2, SHAFT
722	3-718-777-02	o	DECK, RESERVE PRESS

CASSETTE-UP COMPARTMENT BLOCK

CASSETTE-UP COMPARTMENT BLOCK

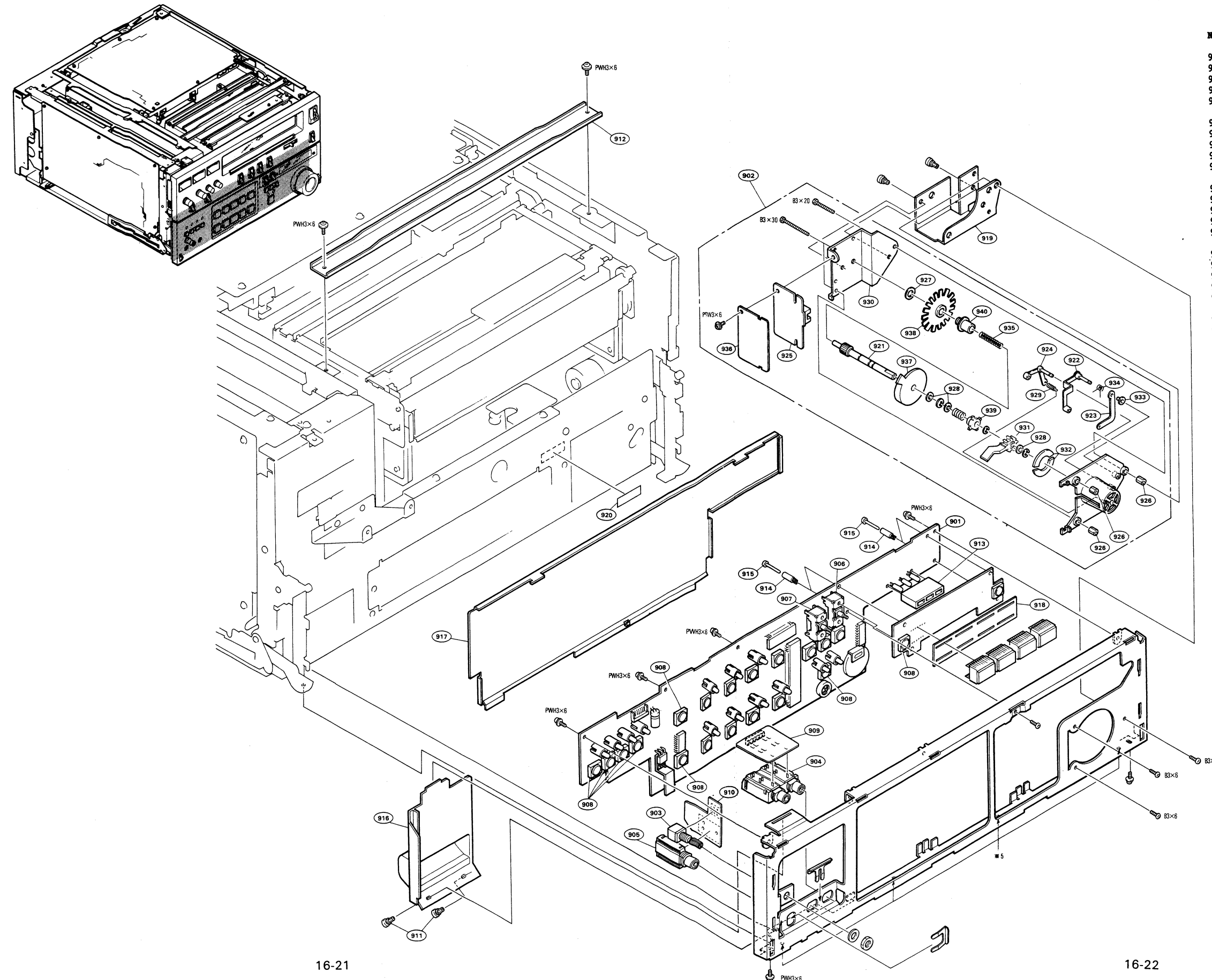
CASSETTE-UP COMPARTMENT BLOCK



No.	Part No.	SP	Description
801	A-6751-391-B	s	CASSETTE-UP BLOCK ASS'Y
802	X-3668-059-0	s	ARM ASS'Y, SWITCH, DOWN
803	X-3668-060-3	o	HOLDER ASS'Y, ARM
804	X-3718-661-1	s	PLATE (RIGHT) ASS'Y, RACK
805	X-3718-662-1	s	PLATE (LEFT) ASS'Y, RACK
806	1-623-101-11	o	PRINTED CIRCUIT BOARD, LP-41
807	1-627-572-12	o	PRINTED CIRCUIT BOARD, CC-36
808	1-627-573-12	o	PRINTED CIRCUIT BOARD, CC-37
809	3-507-051-00	s	SPRING, TENSION
810	3-534-274-XX	s	SPRING, TENSION (22T)
811	3-630-567-XX	s	SPRING, TENSION (20T)
812	3-653-387-00	s	BELT, LM
813	3-668-295-00	o	LEVER (RIGHT), CASSETTE PUSH-OUT
814	3-668-296-00	o	LEVER (LEFT), CASSETTE PUSH-OUT
815	3-668-297-00	s	RETAINER, CASSETTE
816	3-668-298-02	o	SPRING
817	3-668-299-00	s	ROLLER, GUIDE
818	3-668-303-00	s	GEAR (A)
819	3-668-304-00	s	GEAR (B)
820	3-668-307-02	o	JOINT (R), LEFT & RIGHT
821	3-668-310-02	o	ARM, LID OPEN
822	3-672-750-01	s	PULLEY, MOTOR
823	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.50T
824	3-718-373-01	o	RETAINER, LID
825	3-718-374-01	o	JOINT (F), LEFT & RIGHT
826	3-721-474-01	o	SHAFT, DRIVER
827	3-721-476-01	o	WIRE, FIXED
828	3-721-477-01	s	GEAR (C)
829	3-721-478-01	s	GEAR (D)
830	3-721-479-01	s	BEARING (6)
831	3-721-480-01	s	LID, CASSETTE
832	3-721-483-02	o	CAM, LID OPEN
833	3-721-486-01	s	REFLECTOR
834	8-835-179-01	s	MOTOR, DC MCB2B15

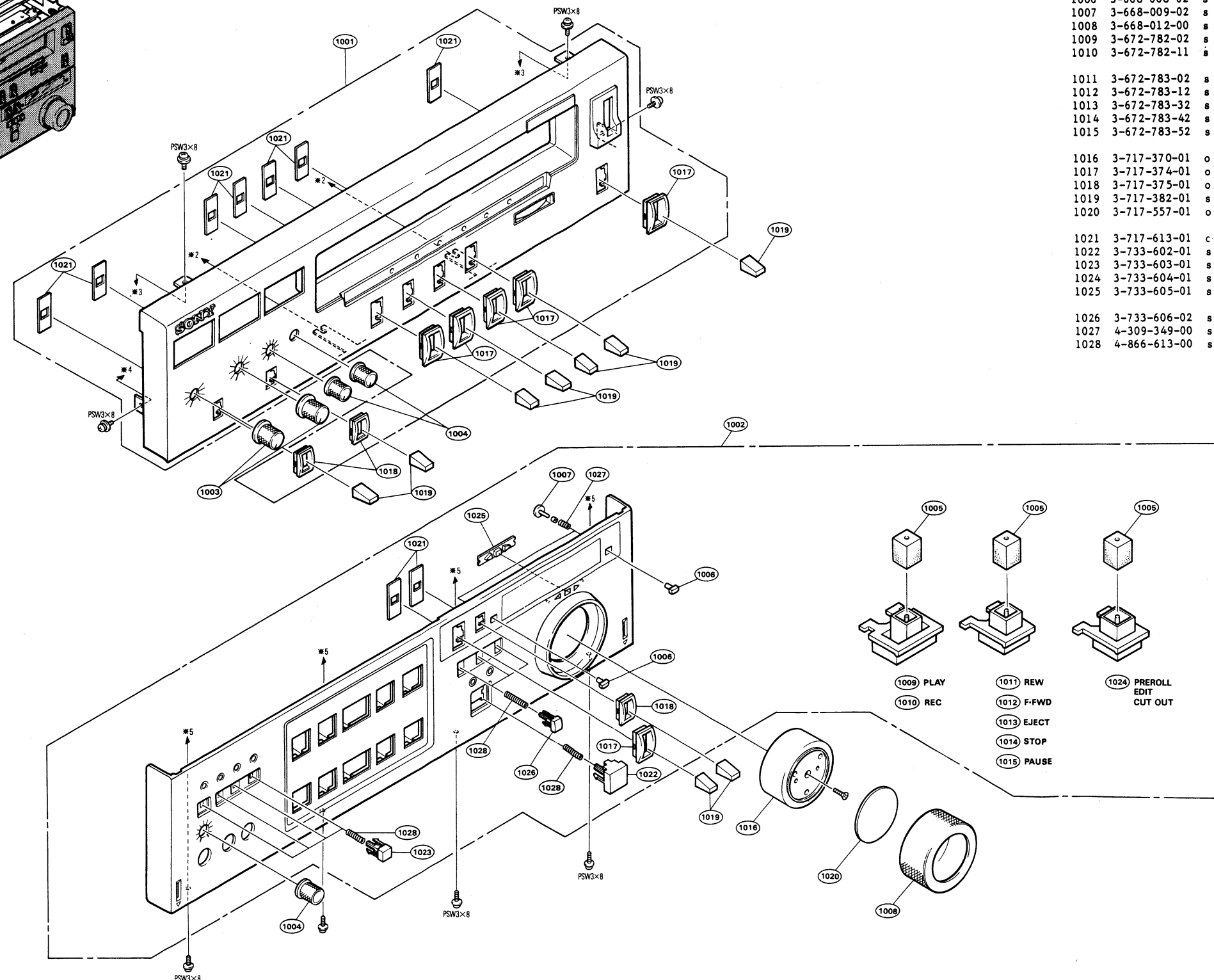
FUNCTION CONTROL FUNCTION CONTROL

FUNCTION CONTROL



No.	Part No.	SP	Description
901	A-6717-525-A	o	MOUNTED CIRCUIT BOARD, KY-159
902	A-6734-238-B	s	DIAL BLOCK ASS'Y, SEARCH
903	1-237-703-11	s	RES, VAR, CARBON 2K/2K
904	1-507-797-21	s	JACK, LARGE TYPE 2P
905	1-507-854-00	s	JACK, LARGE TYPE
906	1-516-961-00	s	SWITCH, LEVER SLIDE
907	1-516-995-00	s	SWITCH, LEVER SLIDE
908	1-552-539-00	s	SWITCH, KEY BOARD
909	1-622-222-11	o	PRINTED CIRCUIT BOARD, MC-28
910	1-629-477-11	o	PRINTED CIRCUIT BOARD, HP-42
911	3-531-576-01	s	RIVET
912	3-672-765-01	o	BRACKET, C
913	3-718-657-01	o	HOLDER, LED
914	3-733-617-01	o	HOLDER, BUZZER
915	3-733-618-01	s	PIN, BUZZER HOLDER
916	3-733-620-01	o	PROTECT, MC
917	3-733-645-01	o	PROTECTOR, KY
918	3-733-652-01	o	SPACER, 7 SEG
919	3-733-668-01	o	COVER, SD
920	3-703-079-31	s	LABEL, CAUTION (BACK)
921	X-3717-226-1	o	SHAFT SUB ASS'Y, MAIN
922	X-3717-227-1	o	ARM (RIGHT) ASS'Y, S10
923	X-3717-228-1	o	ARM (LEFT) ASS'Y, S10
924	X-3717-229-1	o	ARM ASS'Y, RETURN
925	1-622-638-11	o	PRINTED CIRCUIT BOARD, PTC-32
926	2-280-622-11	o	SUPPORT (M3), HEXAGON
927	3-662-048-00	s	WASHER, BRACKET
928	3-701-443-21	s	WASHER, POLY 5MM DIA., 0.5T
929	3-701-788-XX	s	SPRING, TENSION (15T)
930	3-717-315-01	o	PLATE, BOTTOM, SD
931	3-717-316-02	o	GUIDE, LOCK IN
932	3-717-317-01	o	PLATE, CLUTCH
933	3-717-318-01	o	BEARING, S10
934	3-717-319-01	o	SPRING, TORSION
935	3-717-320-01	o	SPRING, COMPRESSION
936	3-717-321-01	o	PROTECTOR, PTC
937	3-717-417-01	o	CAM
938	3-717-418-01	o	PLATE
939	3-717-546-01	o	GUIDE, LOCK OUT
940	3-717-553-01	o	BEARING, SD

FRONT PANEL AND KEY PANEL BLOCKS

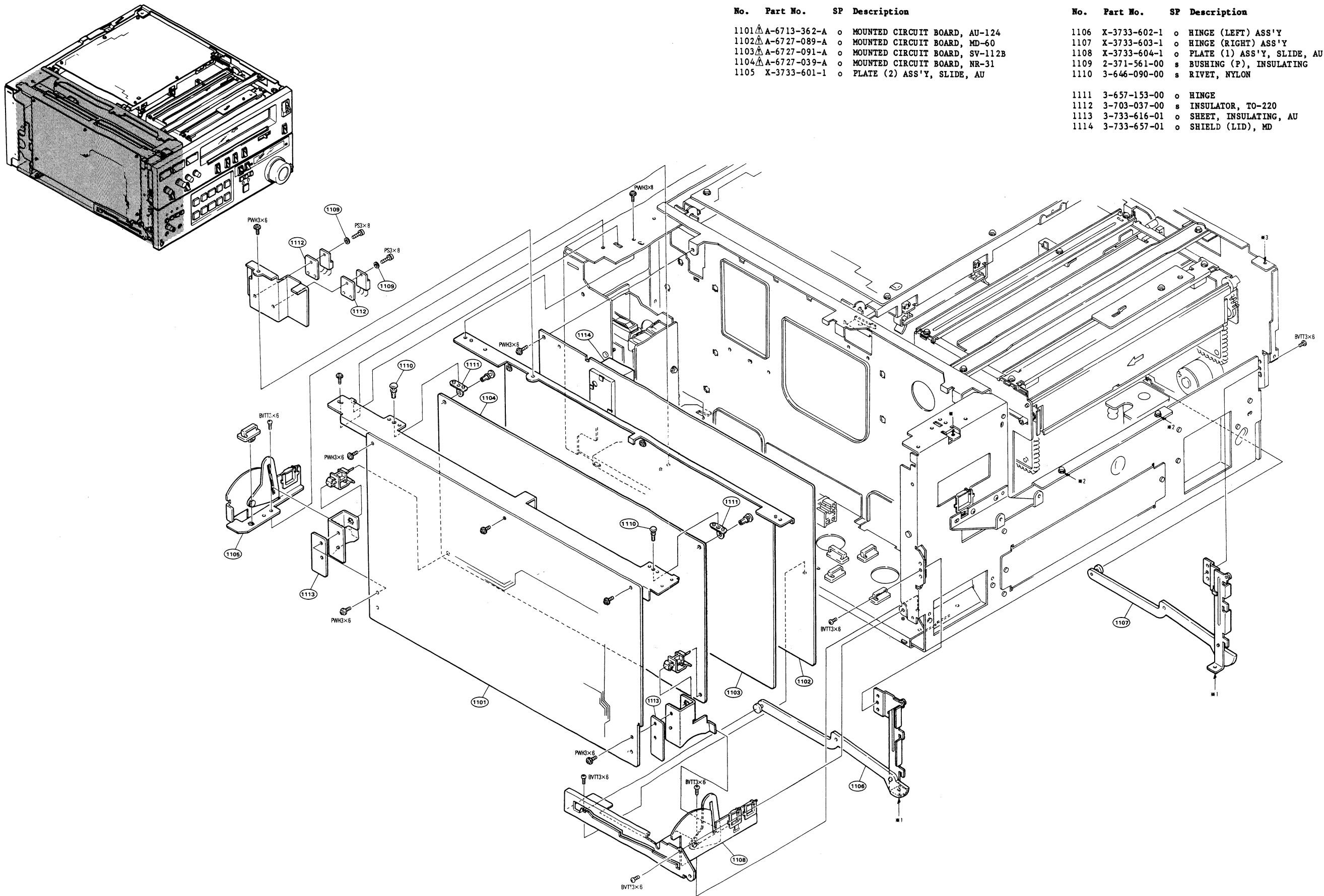


No.	Part No.	SP	Description
1001	A-6704-367-A	o	PANEL BLOCK ASS'Y, FRONT
1002	A-6704-368-A	o	PANEL BLOCK ASS'Y, KEY
1003	X-3661-073-0	s	KNOB ASS'Y, CONTROL
1004	X-3668-075-0	s	KNOB ASS'Y, CONTROL
1005	2-284-744-00	o	CUSHION (B), KEY
1006	3-668-008-02	s	PUSH BUTTON (3x5)
1007	3-668-009-02	s	PIN, PUSH BOTTON
1008	3-668-012-00	s	RUBBER, DIAL KNOB
1009	3-672-782-02	s	KEY TOP (A) "PLAY"
1010	3-672-782-11	s	KEY TOP (A) "REC"
1011	3-672-783-02	s	KEY TOP (B) "REW"
1012	3-672-783-12	s	KEY TOP (B) "F FWD"
1013	3-672-783-32	s	KEY TOP (B) "EJECT"
1014	3-672-783-42	s	KEY TOP (B) "STOP"
1015	3-672-783-52	s	KEY TOP (B) "PAUSE"
1016	3-717-370-01	o	KNOB, DIAL
1017	3-717-374-01	o	FRAME (23x12), ORNAMENTAL, SW
1018	3-717-375-01	o	FRAME (18x12), ORNAMENTAL, SW
1019	3-717-382-01	s	KNOB, LEVER SW
1020	3-717-557-01	o	PLATE, KNOB
1021	3-717-613-01	c	PLATE, ORNAMENTAL, LSW
1022	3-733-602-01	s	KEY TOP (S)
1023	3-733-603-01	s	KEY TOP
1024	3-733-604-01	s	KEY TOP (PC)
1025	3-733-605-01	s	COVER, LED
1026	3-733-606-02	s	PUSH BUTTON (5x9)
1027	4-309-349-00	s	SPRING, COIL
1028	4-866-613-00	s	SPRING, COMPRESSION

CHASSIS BLOCK (1)

CHASSIS BLOCK (1)

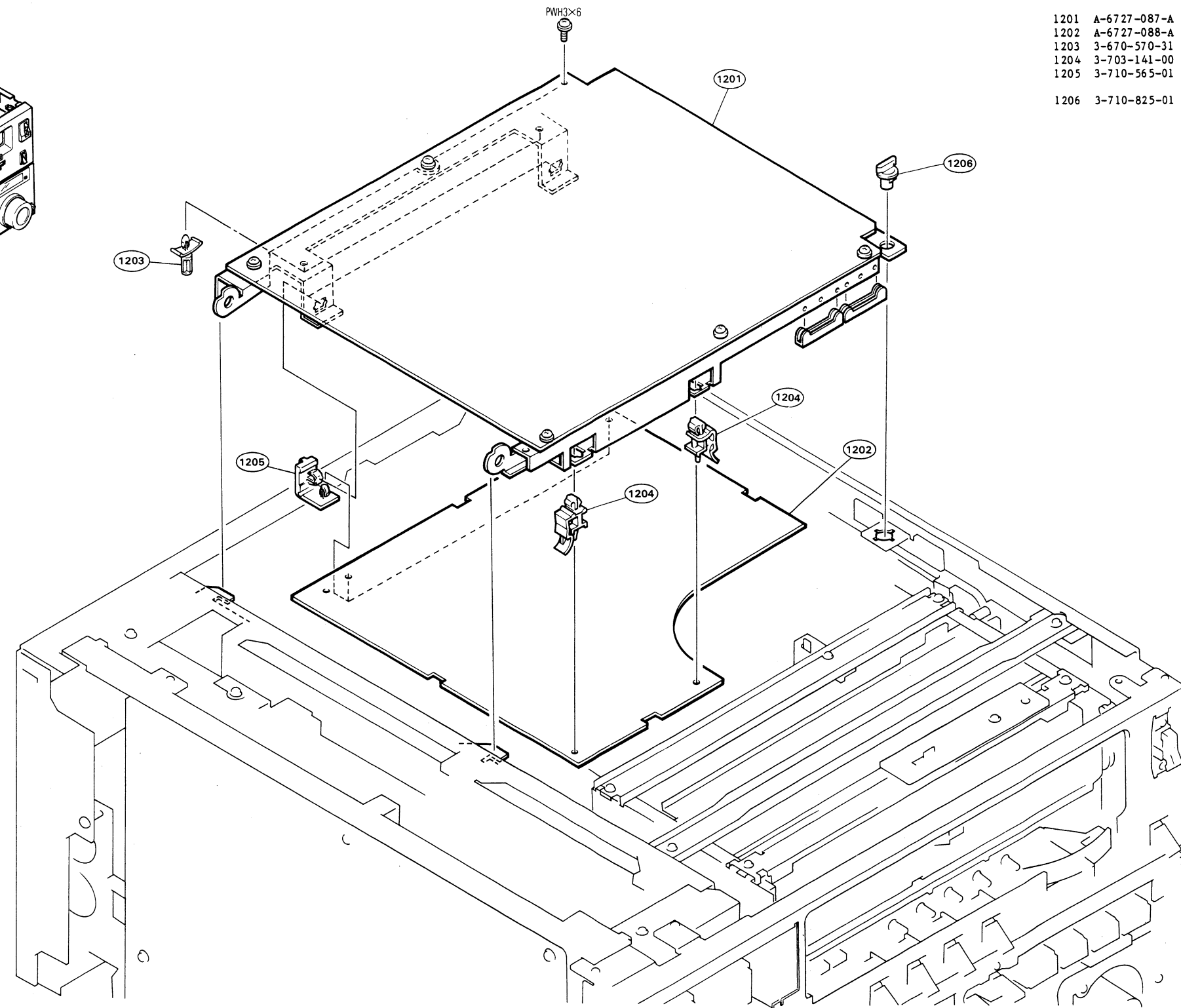
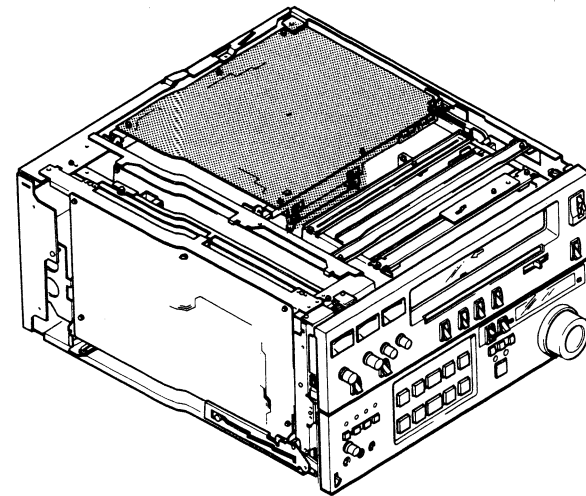
CHASSIS BLOCK (1), LEFT SIDE



CHASSIS BLOCK (2)

CHASSIS BLOCK (2)

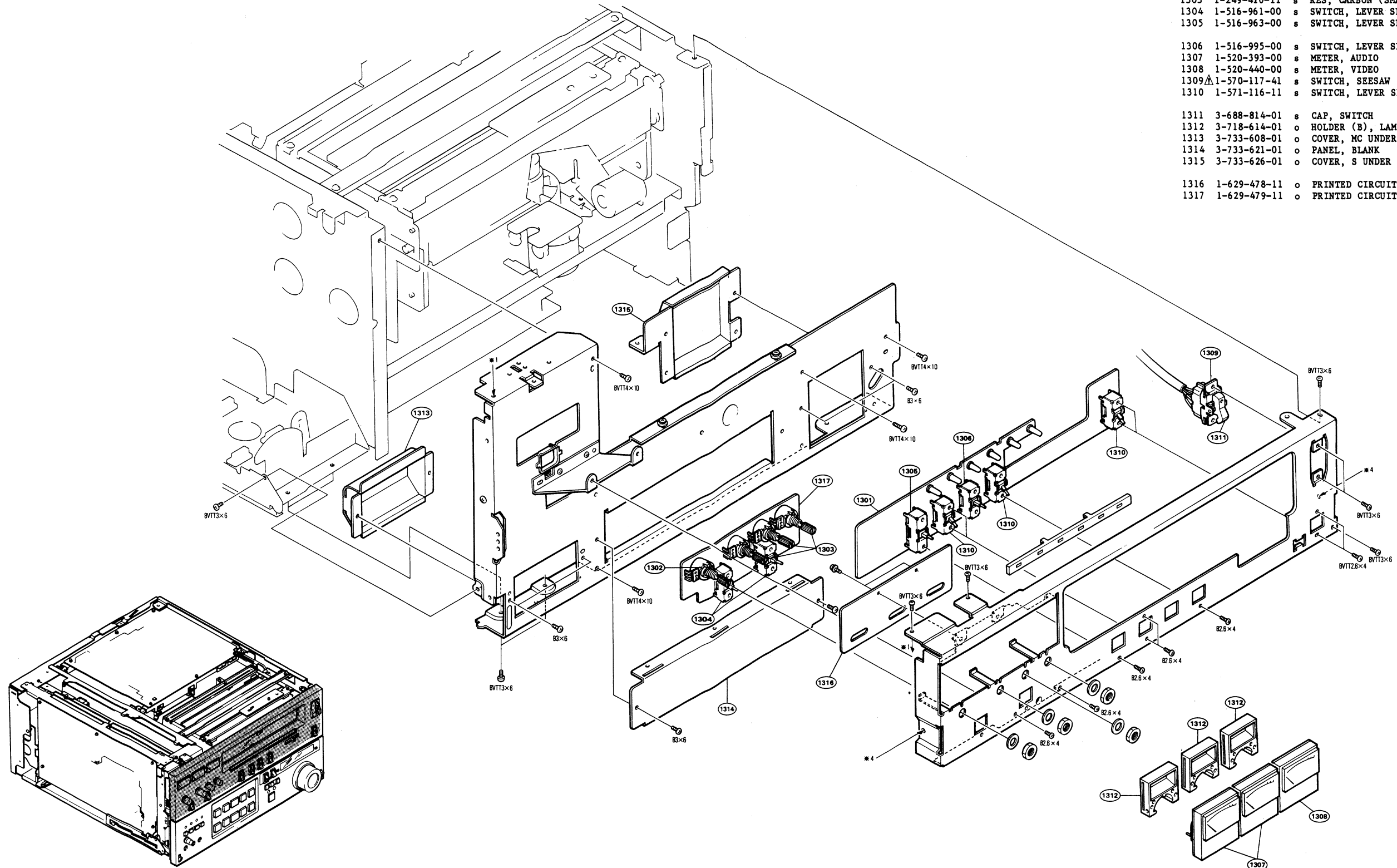
CHASSIS BLOCK (2), TOP



No.	Part No.	SP	Description
1201	A-6727-087-A	o	MOUNTED CIRCUIT BOARD, DM-72
1202	A-6727-088-A	o	MOUNTED CIRCUIT BOARD, DM-73
1203	3-670-570-31	o	SPACER, SUPPORT
1204	3-703-141-00	o	HOLDER, PCB
1205	3-710-565-01	o	HINGE, PC BOARD
1206	3-710-825-01	o	FASTENER, PLATE

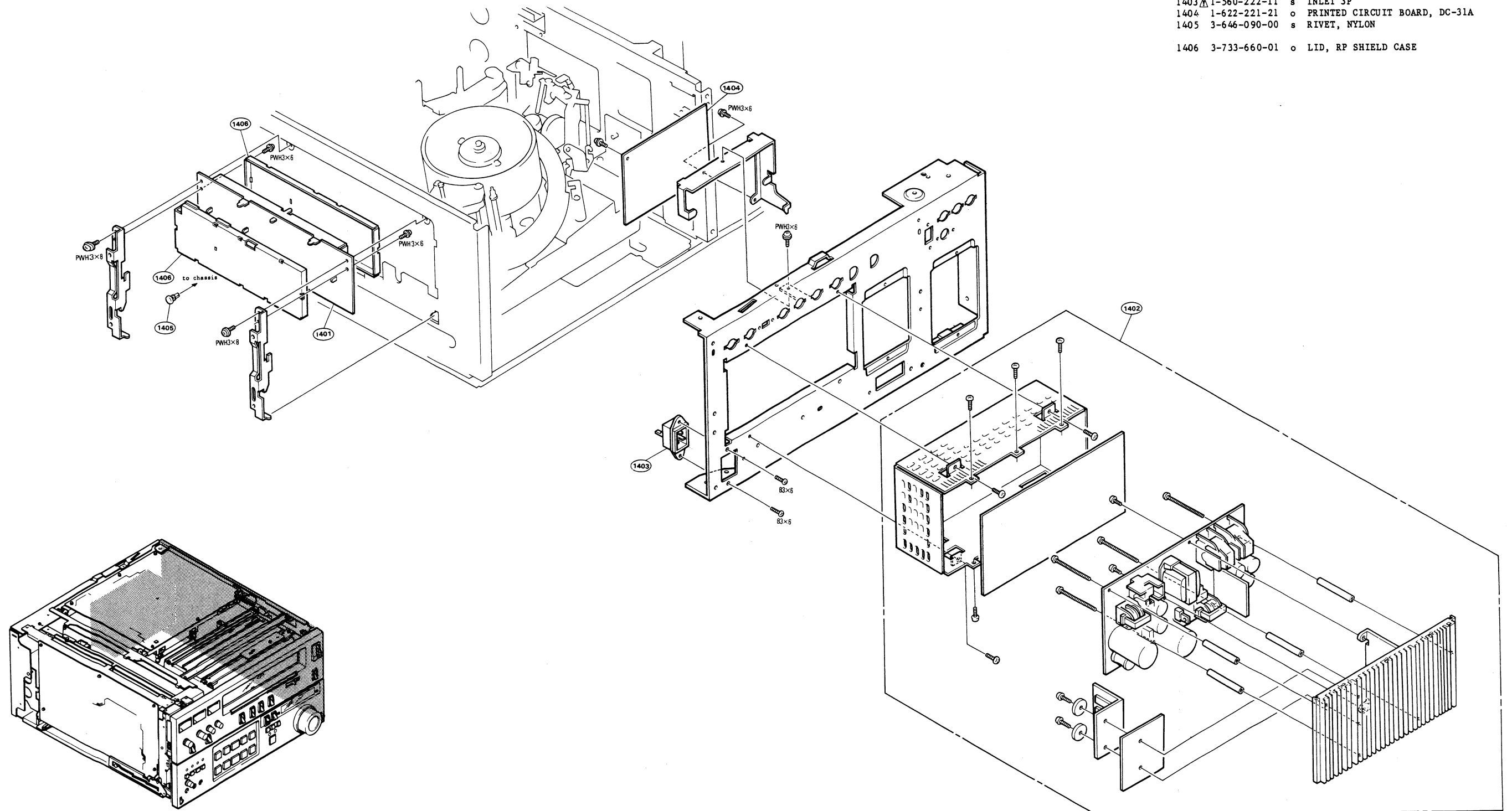
LEVEL CONTROL

No.	Part No.	SP	Description
1301	A-6729-877-A	o	MOUNTED CIRCUIT BOARD, SW-315B
1302	1-237-713-11	s	RES, VAR, CARBON 100K
1303	1-249-410-11	s	RES, CARBON (SMALL) 270
1304	1-516-961-00	s	SWITCH, LEVER SLIDE
1305	1-516-963-00	s	SWITCH, LEVER SLIDE
1306	1-516-995-00	s	SWITCH, LEVER SLIDE
1307	1-520-393-00	s	METER, AUDIO
1308	1-520-440-00	s	METER, VIDEO
1309	1-570-117-41	s	SWITCH, SEESAW (AC POWER)
1310	1-571-116-11	s	SWITCH, LEVER SLIDE
1311	3-688-814-01	s	CAP, SWITCH
1312	3-718-614-01	o	HOLDER (B), LAMP
1313	3-733-608-01	o	COVER, MC UNDER
1314	3-733-621-01	o	PANEL, BLANK
1315	3-733-626-01	o	COVER, S UNDER
1316	1-629-478-11	o	PRINTED CIRCUIT BOARD, MT-53
1317	1-629-479-11	o	PRINTED CIRCUIT BOARD, VR-80



CHASSIS BLOCK (3), RIGHT SIDE AND REAR

No.	Part No.	SP	Description
1401	A-6727-090-A	o	MOUNTED CIRCUIT BOARD, RP-40B
1402	1-413-075-00	o	SWITCHING REGULATOR (UR-02)
1403	1-560-222-11	s	INLET 3P
1404	1-622-221-21	o	PRINTED CIRCUIT BOARD, DC-31A
1405	3-646-090-00	s	RIVET, NYLON
1406	3-733-660-01	o	LID, RP SHIELD CASE



CONNECTOR PANEL

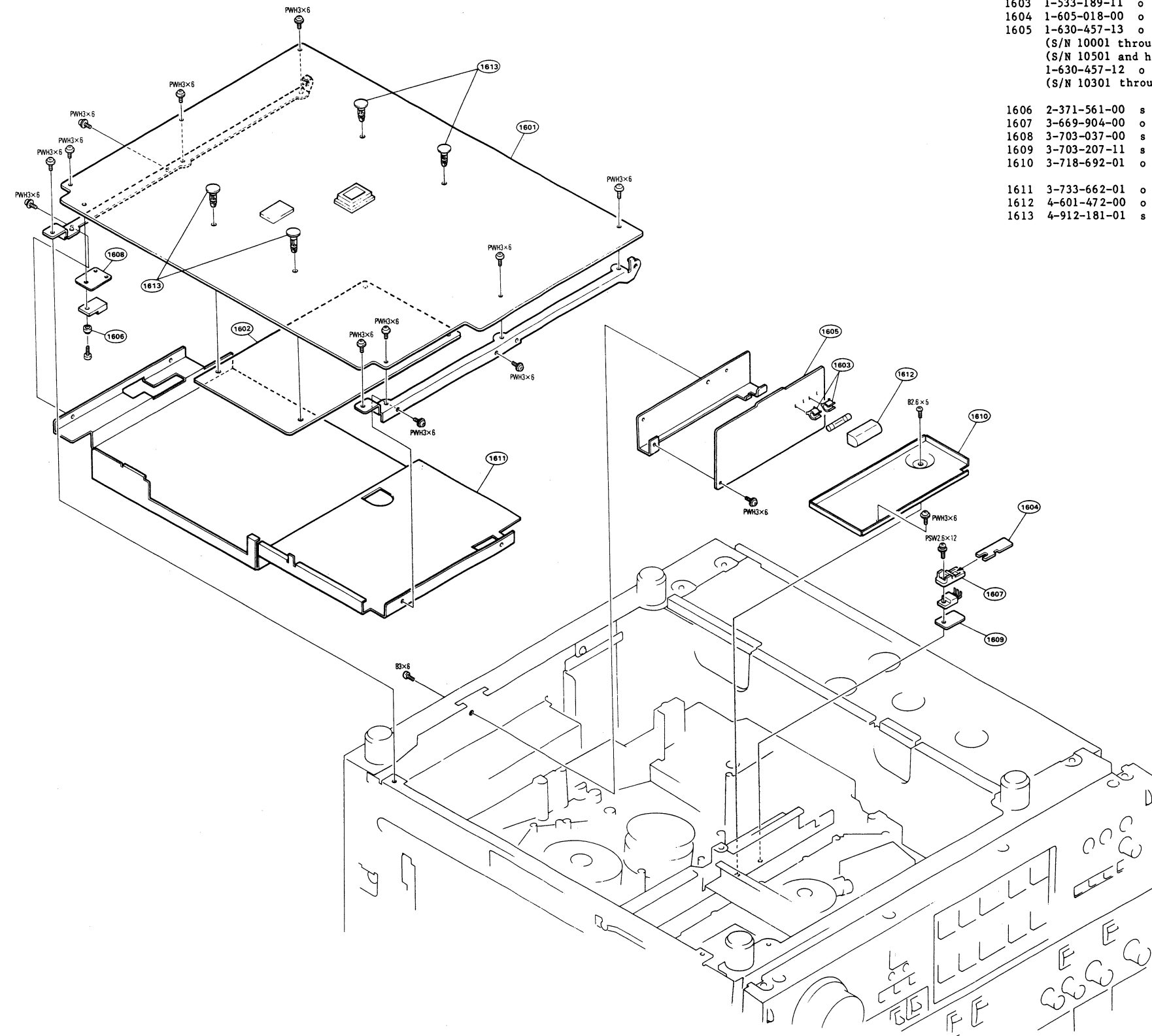
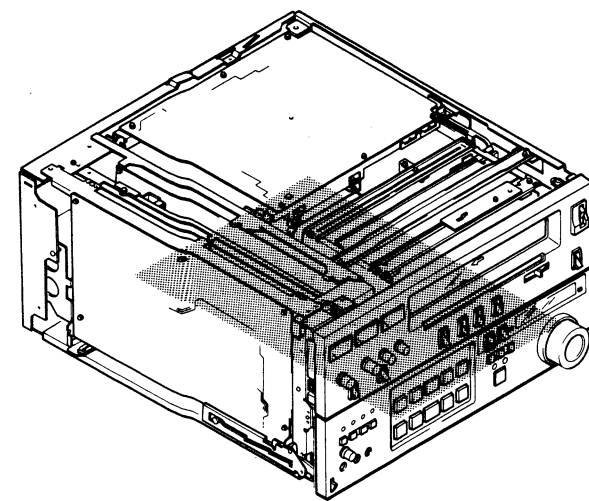
1505	1-561-655-00	s	CONNECTOR SOCKET, M
1506	1-562-227-21	s	RECEPTACLE, BNC
1507	1-563-029-21	s	CONNECTOR (RECEPTAC
1508	1-563-030-21	s	CONNECTOR (RECEPTAC
1509	1-566-622-11	s	CONNECTOR, CIRCLE (
1510	1-571-083-21	s	SWITCH, SLIDE
1511	1-629-473-11	o	PRINTED CIRCUIT BOA
1512	3-654-545-00	s	SPACER, BNC
1513	3-661-147-00	o	NUT, PLATE
1514	3-668-459-11	o	SCREW, CONNECTOR
1515	3-668-460-00	o	SPRING
1516	3-733-601-01	o	BRACKET, 9P
1517	3-733-627-01	o	COVER, IF
1518	3-733-641-01	o	BRACKET, XLR
1519	3-733-649-11	o	PANEL, REAR
1520	1-629-480-11	o	PRINTED CIRCUIT BOA
1521	1-629-481-11	o	PRINTED CIRCUIT BOA
1522	1-554-423-00	s	SWITCH, SLIDE

No.	Part No.	SP	Description
1501	A-6713-363-A	o	MOUNTED CIRCUIT BOARD, AA-16
1502	1-507-467-00	s	1P PIN JACK
1503	1-561-045-00	s	CONNECTOR, (R-F)
1504	1-561-577-21	s	CONNECTOR (DIP TYPE) 8P
1505	1-561-655-00	s	CONNECTOR SOCKET, MINIATURE 9P
1506	1-562-227-21	s	RECEPTACLE, BNC
1507	1-563-029-21	s	CONNECTOR (RECEPTACLE) 3P
1508	1-563-030-21	s	CONNECTOR (RECEPTACLE) 3P
1509	1-566-622-11	s	CONNECTOR, CIRCLE (R-M) 7P
1510	1-571-083-21	s	SWITCH, SLIDE
1511	1-629-473-11	o	PRINTED CIRCUIT BOARD, RM-66
1512	3-654-545-00	s	SPACER, BNC
1513	3-661-147-00	o	NUT, PLATE
1514	3-668-459-11	o	SCREW, CONNECTOR
1515	3-668-460-00	o	SPRING
1516	3-733-601-01	o	BRACKET, 9P
1517	3-733-627-01	o	COVER, IF
1518	3-733-641-01	o	BRACKET, XLR
1519	3-733-649-11	o	PANEL, REAR
1520	1-629-480-11	o	PRINTED CIRCUIT BOARD, DUS-271
1521	1-629-481-11	o	PRINTED CIRCUIT BOARD, CP-136
1522	1-554-423-00	s	SWITCH, SLIDE

CHASSIS BLOCK (4)

CHASSIS BLOCK (4)

CHASSIS BLOCK (4), BOTTOM

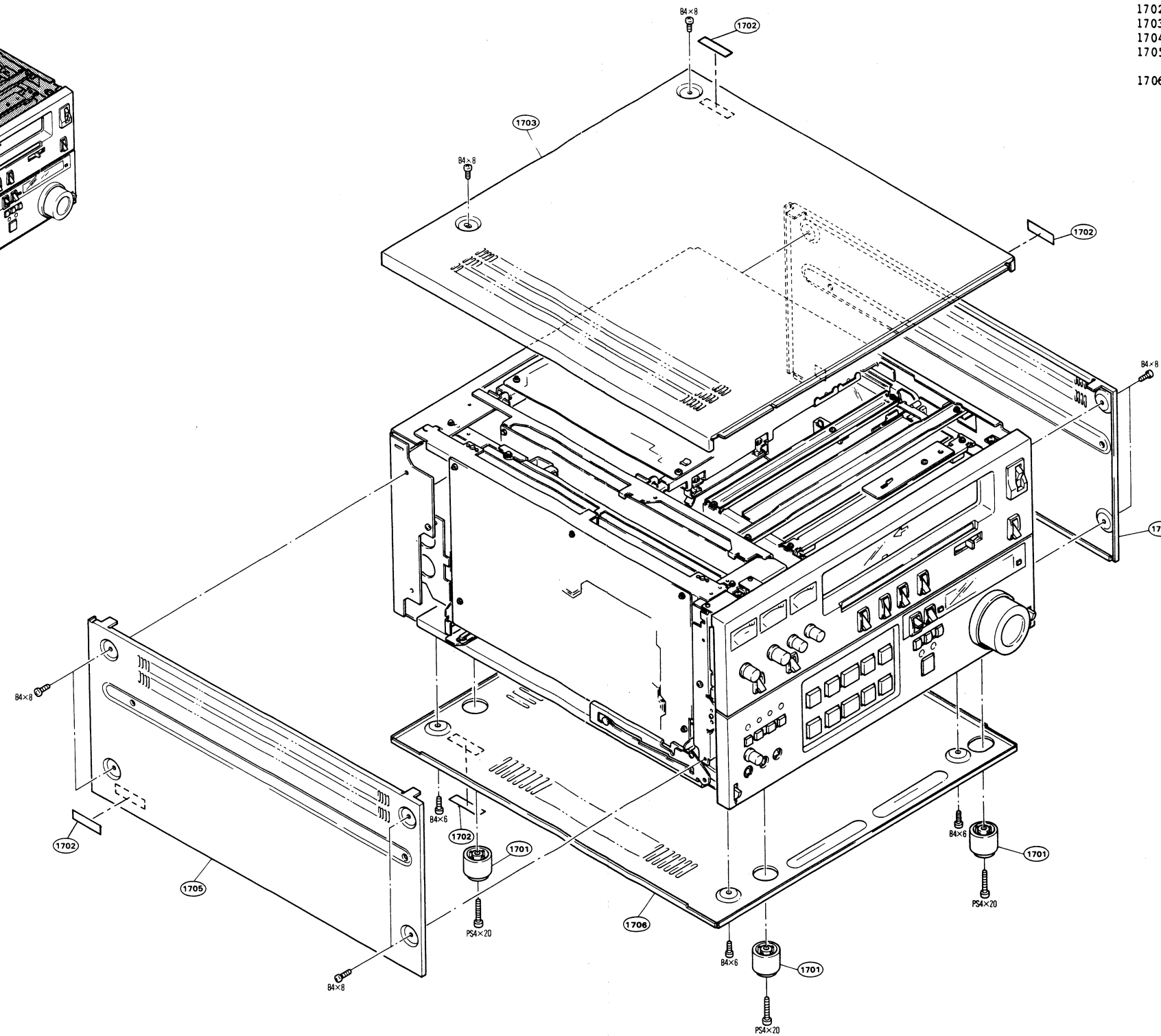
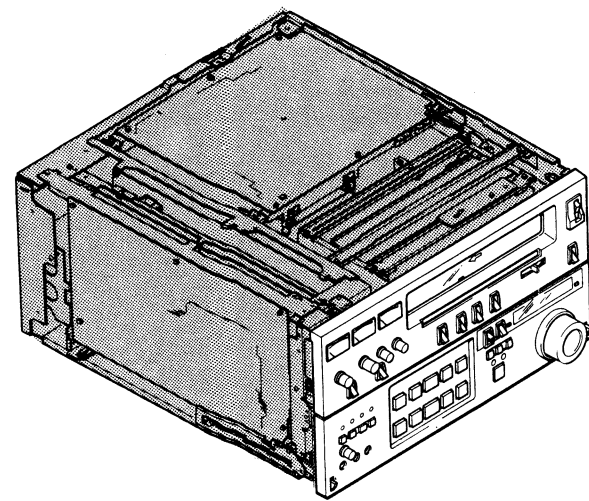


No.	Part No.	SP	Description
1601	A-6727-092-A	o	MOUNTED CIRCUIT BOARD, SY-141B
1602	A-6727-093-A	o	MOUNTED CIRCUIT BOARD, BC-16A
1603	1-533-189-11	o	HOLDER, FUSE
1604	1-605-018-00	o	PRINTED CIRCUIT BOARD, PT-9
1605	1-630-457-13	o	PRINTED CIRCUIT BOARD, AC-98
	(S/N 10001 through 10300)		
	(S/N 10501 and higher)		
	1-630-457-12	o	PRINTED CIRCUIT BOARD, AC-98
	(S/N 10301 through 10500)		
1606	2-371-561-00	s	BUSHING (P), INSULATING
1607	3-669-904-00	o	HOLDER, PT
1608	3-703-037-00	s	INSULATOR, TO-220
1609	3-703-207-11	s	INSULATOR, TO-220
1610	3-718-692-01	o	RETAINER, V HARNESS
1611	3-733-662-01	o	SHIELD, SY
1612	4-601-472-00	o	COVER, FUSE
1613	4-912-181-01	s	SUPPORT, PC

ORNAMENTAL PANEL

ORNAMENTAL PANEL

ORNAMENTAL PANEL



No.	Part No.	SP	Description
1701	3-642-656-01	o	LEG
1702	3-703-079-31	s	LABEL, CAUTION (BACK)
1703	3-733-635-01	o	PANEL, TOP
1704	3-733-636-01	o	PANEL (RIGHT), SIDE
1705	3-733-637-01	o	PANEL (LEFT), SIDE
1706	3-733-638-01	o	PLATE, BOTTOM

16-3. ELECTRICAL PARTS LIST

CAPACITOR, MYLAR

Part No. SP Description

1-130-467-00	s	CAP, MYLAR	470pF	5%	50V
1-130-468-00	s	CAP, MYLAR	560pF	5%	50V
1-130-469-00	s	CAP, MYLAR	680pF	5%	50V
1-130-470-00	s	CAP, MYLAR	820pF	5%	50V
1-130-471-00	s	CAP, MYLAR	1000pF	5%	50V
1-130-472-00	s	CAP, MYLAR	1200pF	5%	50V
1-130-473-00	s	CAP, MYLAR	1500pF	5%	50V
1-130-474-00	s	CAP, MYLAR	1800pF	5%	50V
1-130-475-00	s	CAP, MYLAR	2200pF	5%	50V
1-130-476-00	s	CAP, MYLAR	2700pF	5%	50V
1-130-477-00	s	CAP, MYLAR	3300pF	5%	50V
1-130-478-00	s	CAP, MYLAR	3900pF	5%	50V
1-130-479-00	s	CAP, MYLAR	4700pF	5%	50V
1-130-480-00	s	CAP, MYLAR	5600pF	5%	50V
1-130-481-00	s	CAP, MYLAR	6800pF	5%	50V
1-130-482-00	s	CAP, MYLAR	8200pF	5%	50V
1-130-483-00	s	CAP, MYLAR	0.01	5%	50V
1-130-484-00	s	CAP, MYLAR	0.012	5%	50V
1-130-485-00	s	CAP, MYLAR	0.015	5%	50V
1-130-486-00	s	CAP, MYLAR	0.018	5%	50V
1-130-487-00	s	CAP, MYLAR	0.022	5%	50V
1-130-488-00	s	CAP, MYLAR	0.027	5%	50V
1-130-489-00	s	CAP, MYLAR	0.033	5%	50V
1-130-490-11	s	CAP, MYLAR	0.039	5%	50V
1-130-491-00	s	CAP, MYLAR	0.047	5%	50V
1-130-492-11	s	CAP, MYLAR	0.056	5%	50V
1-130-493-00	s	CAP, MYLAR	0.068	5%	50V
1-130-494-11	s	CAP, MYLAR	0.082	5%	50V
1-130-495-00	s	CAP, MYLAR	0.1	5%	50V
1-130-496-00	s	CAP, MYLAR	0.12	5%	50V
1-130-497-00	s	CAP, MYLAR	0.15	5%	50V
1-130-498-00	s	CAP, MYLAR	0.18	5%	50V
1-130-499-00	s	CAP, MYLAR	0.22	5%	50V
1-136-502-11	s	CAP, MYLAR	0.33	5%	50V

CAPACITOR, MICA, SILVERED

Part No. SP Description

1-107-019-00	s	CAP, MICA	1.0pF	+/-0.5pF	500V
1-107-039-00	s	CAP, MICA	1.2pF	+/-0.5pF	500V
1-107-040-00	s	CAP, MICA	1.5pF	+/-0.5pF	500V
1-107-041-00	s	CAP, MICA	1.8pF	+/-0.5pF	500V
1-107-042-00	s	CAP, MICA	2.2pF	+/-0.5pF	500V
1-107-043-00	s	CAP, MICA	2.7pF	+/-0.5pF	500V
1-107-044-00	s	CAP, MICA	3.3pF	+/-0.5pF	500V
1-107-045-00	s	CAP, MICA	3.9pF	+/-0.5pF	500V
1-107-046-00	s	CAP, MICA	4.7pF	+/-0.5pF	500V
1-107-026-00	s	CAP, MICA	5.1pF	+/-0.5pF	500V
1-107-047-00	s	CAP, MICA	5.6pF	+/-0.5pF	500V
1-107-048-00	s	CAP, MICA	6.8pF	+/-0.5pF	500V
1-107-049-00	s	CAP, MICA	8.2pF	+/-0.5pF	500V
1-107-202-00	s	CAP, MICA	10pF	5%	500V
1-107-203-00	s	CAP, MICA	11pF	5%	500V
1-107-204-00	s	CAP, MICA	12pF	5%	500V
1-107-205-00	s	CAP, MICA	13pF	5%	500V
1-107-206-00	s	CAP, MICA	15pF	5%	500V
1-107-207-00	s	CAP, MICA	16pF	5%	500V
1-107-208-00	s	CAP, MICA	18pF	5%	500V
1-107-209-00	s	CAP, MICA	20pF	5%	500V
1-107-210-00	s	CAP, MICA	22pF	5%	500V
1-107-211-00	s	CAP, MICA	24pF	5%	500V
1-107-157-00	s	CAP, MICA	27pF	5%	500V
1-107-158-00	s	CAP, MICA	30pF	5%	500V
1-107-159-00	s	CAP, MICA	33pF	5%	500V
1-107-074-00	s	CAP, MICA	36pF	5%	50V
1-107-075-00	s	CAP, MICA	39pF	5%	50V
1-107-076-00	s	CAP, MICA	43pF	5%	50V
1-107-077-00	s	CAP, MICA	47pF	5%	50V
1-107-164-00	s	CAP, MICA	51pF	5%	500V
1-107-165-00	s	CAP, MICA	56pF	5%	500V
1-107-166-00	s	CAP, MICA	62pF	5%	500V
1-107-036-00	s	CAP, MICA	68pF	5%	500V
1-107-167-00	s	CAP, MICA	75pF	5%	500V
1-107-083-00	s	CAP, MICA	82pF	5%	50V
1-107-084-00	s	CAP, MICA	91pF	5%	50V
1-107-085-00	s	CAP, MICA	100pF	5%	50V
1-107-086-00	s	CAP, MICA	110pF	5%	50V
1-107-087-00	s	CAP, MICA	120pF	5%	50V
1-109-538-00	s	CAP, MICA	130pF	5%	100V
1-109-539-00	s	CAP, MICA	150pF	5%	100V
1-107-090-00	s	CAP, MICA	160pF	5%	50V
1-109-540-00	s	CAP, MICA	180pF	5%	100V
1-109-541-00	s	CAP, MICA	200pF	5%	100V
1-109-542-00	s	CAP, MICA	220pF	5%	100V
1-109-545-00	s	CAP, MICA	270pF	5%	100V
1-109-547-00	s	CAP, MICA	330pF	5%	100V
1-109-549-00	s	CAP, MICA	390pF	5%	100V
1-109-633-00	s	CAP, MICA	470pF	2%	500V
1-109-555-00	s	CAP, MICA	560pF	5%	100V
1-109-635-00	s	CAP, MICA	470pF	2%	500V

RESISTOR, CARBON

Part No. SP Description

1-249-381-11	s RES, CARBON	1.0	5%	1/4W
1-249-382-11	s RES, CARBON	1.2	5%	1/4W
1-249-383-11	s RES, CARBON	1.5	5%	1/4W
1-249-384-11	s RES, CARBON	1.8	5%	1/4W
1-249-385-11	s RES, CARBON	2.2	5%	1/4W
1-249-386-11	s RES, CARBON	2.7	5%	1/4W
1-249-387-11	s RES, CARBON	3.3	5%	1/4W
1-249-388-11	s RES, CARBON	3.9	5%	1/4W
1-249-389-11	s RES, CARBON	4.7	5%	1/4W
1-249-390-11	s RES, CARBON	5.6	5%	1/4W
1-249-391-11	s RES, CARBON	6.8	5%	1/4W
1-249-392-11	s RES, CARBON	8.2	5%	1/4W
1-249-393-11	s RES, CARBON	10	5%	1/4W
1-249-394-11	s RES, CARBON	12	5%	1/4W
1-249-395-11	s RES, CARBON	15	5%	1/4W
1-249-396-11	s RES, CARBON	18	5%	1/4W
1-249-397-11	s RES, CARBON	22	5%	1/4W
1-249-398-11	s RES, CARBON	27	5%	1/4W
1-249-399-11	s RES, CARBON	33	5%	1/4W
1-249-400-11	s RES, CARBON	39	5%	1/4W
1-249-401-11	s RES, CARBON	47	5%	1/4W
1-249-402-11	s RES, CARBON	56	5%	1/4W
1-249-403-11	s RES, CARBON	68	5%	1/4W
1-215-394-00	s RES, METAL	75	1%	1/4W
1-249-404-11	s RES, CARBON	82	5%	1/4W
1-249-405-11	s RES, CARBON	100	5%	1/4W
1-249-406-11	s RES, CARBON	120	5%	1/4W
1-249-407-11	s RES, CARBON	150	5%	1/4W
1-249-408-11	s RES, CARBON	180	5%	1/4W
1-249-409-11	s RES, CARBON	220	5%	1/4W
1-249-410-11	s RES, CARBON	270	5%	1/4W
1-249-411-11	s RES, CARBON	330	5%	1/4W
1-249-412-11	s RES, CARBON	390	5%	1/4W
1-249-413-11	s RES, CARBON	470	5%	1/4W
1-249-414-11	s RES, CARBON	560	5%	1/4W
1-249-415-11	s RES, CARBON	680	5%	1/4W
1-249-416-11	s RES, CARBON	820	5%	1/4W
1-249-417-11	s RES, CARBON	1.0k	5%	1/4W
1-249-418-11	s RES, CARBON	1.2k	5%	1/4W
1-249-419-11	s RES, CARBON	1.5k	5%	1/4W
1-249-420-11	s RES, CARBON	1.8k	5%	1/4W
1-249-421-11	s RES, CARBON	2.2k	5%	1/4W
1-249-422-11	s RES, CARBON	2.7k	5%	1/4W
1-249-423-11	s RES, CARBON	3.3k	5%	1/4W
1-249-424-11	s RES, CARBON	3.9k	5%	1/4W
1-249-425-11	s RES, CARBON	4.7k	5%	1/4W
1-249-426-11	s RES, CARBON	5.6k	5%	1/4W
1-249-427-11	s RES, CARBON	6.8k	5%	1/4W
1-249-428-11	s RES, CARBON	8.2k	5%	1/4W
1-249-429-11	s RES, CARBON	10k	5%	1/4W
1-249-430-11	s RES, CARBON	12k	5%	1/4W
1-249-431-11	s RES, CARBON	15k	5%	1/4W
1-249-432-11	s RES, CARBON	18k	5%	1/4W
1-249-433-11	s RES, CARBON	22k	5%	1/4W
1-249-434-11	s RES, CARBON	27k	5%	1/4W
1-249-435-11	s RES, CARBON	33k	5%	1/4W
1-249-436-11	s RES, CARBON	39k	5%	1/4W
1-249-437-11	s RES, CARBON	47k	5%	1/4W
1-249-438-11	s RES, CARBON	56k	5%	1/4W
1-249-439-11	s RES, CARBON	68k	5%	1/4W

(RESISTOR, CARBON)

Part No. SP Description

1-249-440-11	s RES, CARBON	82k	5%	1/4W
1-249-441-11	s RES, CARBON	100k	5%	1/4W
1-215-471-00	s RES, METAL	120k	1%	1/4W
1-215-473-00	s RES, METAL	150k	1%	1/4W
1-215-475-00	s RES, METAL	180k	1%	1/4W
1-215-477-00	s RES, METAL	220k	1%	1/4W
1-215-479-00	s RES, METAL	270k	1%	1/4W
1-215-481-00	s RES, METAL	330k	1%	1/4W
1-215-483-00	s RES, METAL	390k	1%	1/4W
1-215-485-00	s RES, METAL	470k	1%	1/4W
1-215-487-00	s RES, METAL	560k	1%	1/4W
1-215-489-00	s RES, METAL	680k	1%	1/4W
1-215-491-00	s RES, METAL	820k	1%	1/4W
1-215-493-00	s RES, METAL	1.0M	1%	1/4W

RESISTOR, METAL

Part No. SP Description

1-215-373-31	s RES, METAL	10	1% 1/6W
1-215-374-00	s RES, METAL	11	1% 1/6W
1-215-375-00	s RES, METAL	12	1% 1/6W
1-215-376-00	s RES, METAL	13	1% 1/6W
1-215-377-00	s RES, METAL	15	1% 1/6W
1-215-378-00	s RES, METAL	16	1% 1/6W
1-215-379-00	s RES, METAL	18	1% 1/6W
1-215-380-00	s RES, METAL	20	1% 1/6W
1-215-381-00	s RES, METAL	22	1% 1/6W
1-215-382-00	s RES, METAL	24	1% 1/6W
1-215-383-00	s RES, METAL	27	1% 1/6W
1-215-384-00	s RES, METAL	30	1% 1/6W
1-215-385-00	s RES, METAL	33	1% 1/6W
1-215-386-00	s RES, METAL	36	1% 1/6W
1-215-387-00	s RES, METAL	39	1% 1/6W
1-215-388-00	s RES, METAL	43	1% 1/6W
1-215-389-00	s RES, METAL	47	1% 1/6W
1-215-390-00	s RES, METAL	51	1% 1/6W
1-215-391-00	s RES, METAL	56	1% 1/6W
1-215-392-00	s RES, METAL	62	1% 1/6W
1-215-393-00	s RES, METAL	68	1% 1/6W
1-215-394-00	s RES, METAL	75	1% 1/6W
1-215-395-00	s RES, METAL	82	1% 1/6W
1-215-396-00	s RES, METAL	91	1% 1/6W
1-215-397-00	s RES, METAL	100	1% 1/6W
1-215-398-00	s RES, METAL	110	1% 1/6W
1-215-399-00	s RES, METAL	120	1% 1/6W
1-215-400-00	s RES, METAL	130	1% 1/6W
1-215-401-00	s RES, METAL	150	1% 1/6W
1-215-402-00	s RES, METAL	160	1% 1/6W
1-215-403-00	s RES, METAL	180	1% 1/6W
1-215-404-00	s RES, METAL	200	1% 1/6W
1-215-405-00	s RES, METAL	220	1% 1/6W
1-215-406-00	s RES, METAL	240	1% 1/6W
1-215-407-00	s RES, METAL	270	1% 1/6W
1-215-408-00	s RES, METAL	300	1% 1/6W
1-215-409-00	s RES, METAL	330	1% 1/6W
1-215-410-00	s RES, METAL	360	1% 1/6W
1-215-411-00	s RES, METAL	390	1% 1/6W
1-215-412-00	s RES, METAL	430	1% 1/6W
1-215-413-00	s RES, METAL	470	1% 1/6W
1-215-414-00	s RES, METAL	510	1% 1/6W
1-215-415-00	s RES, METAL	560	1% 1/6W
1-215-416-00	s RES, METAL	620	1% 1/6W
1-215-417-00	s RES, METAL	680	1% 1/6W
1-215-418-00	s RES, METAL	750	1% 1/6W
1-215-419-00	s RES, METAL	820	1% 1/6W
1-215-420-00	s RES, METAL	910	1% 1/6W
1-215-421-00	s RES, METAL	1.0k	1% 1/6W
1-215-422-00	s RES, METAL	1.1k	1% 1/6W
1-215-423-00	s RES, METAL	1.2k	1% 1/6W
1-215-424-00	s RES, METAL	1.3k	1% 1/6W
1-215-425-00	s RES, METAL	1.5k	1% 1/6W
1-215-426-00	s RES, METAL	1.6k	1% 1/6W
1-215-427-00	s RES, METAL	1.8k	1% 1/6W
1-215-428-00	s RES, METAL	2.0k	1% 1/6W
1-215-429-00	s RES, METAL	2.2k	1% 1/6W
1-215-430-00	s RES, METAL	2.4k	1% 1/6W
1-215-431-00	s RES, METAL	2.7k	1% 1/6W
1-215-432-00	s RES, METAL	3.0k	1% 1/6W

(RESISTOR, METAL)

Part No. SP Description

1-215-433-00	s RES, METAL	3.3k	1% 1/6W
1-215-434-00	s RES, METAL	3.6k	1% 1/6W
1-215-435-00	s RES, METAL	3.9k	1% 1/6W
1-215-436-00	s RES, METAL	4.3k	1% 1/6W
1-215-437-00	s RES, METAL	4.7k	1% 1/6W
1-215-438-00	s RES, METAL	5.1k	1% 1/6W
1-215-439-00	s RES, METAL	5.6k	1% 1/6W
1-215-440-00	s RES, METAL	6.2k	1% 1/6W
1-215-441-00	s RES, METAL	6.8k	1% 1/6W
1-215-442-00	s RES, METAL	7.5k	1% 1/6W
1-215-443-00	s RES, METAL	8.2k	1% 1/6W
1-215-444-00	s RES, METAL	9.1k	1% 1/6W
1-215-445-00	s RES, METAL	10k	1% 1/6W
1-215-446-00	s RES, METAL	11k	1% 1/6W
1-215-447-00	s RES, METAL	12k	1% 1/6W
1-215-448-00	s RES, METAL	13k	1% 1/6W
1-215-449-00	s RES, METAL	15k	1% 1/6W
1-215-450-00	s RES, METAL	16k	1% 1/6W
1-215-451-00	s RES, METAL	18k	1% 1/6W
1-215-452-00	s RES, METAL	20k	1% 1/6W
1-215-453-00	s RES, METAL	22k	1% 1/6W
1-215-454-00	s RES, METAL	24k	1% 1/6W
1-215-455-00	s RES, METAL	27k	1% 1/6W
1-215-456-00	s RES, METAL	30k	1% 1/6W
1-215-457-00	s RES, METAL	33k	1% 1/6W
1-215-458-00	s RES, METAL	36k	1% 1/6W
1-215-459-00	s RES, METAL	39k	1% 1/6W
1-215-460-00	s RES, METAL	43k	1% 1/6W
1-215-461-00	s RES, METAL	47k	1% 1/6W
1-215-462-00	s RES, METAL	51k	1% 1/6W
1-215-463-00	s RES, METAL	56k	1% 1/6W
1-215-464-00	s RES, METAL	62k	1% 1/6W
1-215-465-00	s RES, METAL	68k	1% 1/6W
1-215-466-00	s RES, METAL	75k	1% 1/6W
1-215-467-00	s RES, METAL	82k	1% 1/6W
1-215-468-00	s RES, METAL	91k	1% 1/6W
1-215-469-00	s RES, METAL	100k	1% 1/6W
1-215-470-00	s RES, METAL	110k	1% 1/6W
1-215-471-00	s RES, METAL	120k	1% 1/6W
1-215-472-00	s RES, METAL	130k	1% 1/6W
1-215-473-00	s RES, METAL	150k	1% 1/6W
1-215-474-00	s RES, METAL	160k	1% 1/6W
1-215-475-00	s RES, METAL	180k	1% 1/6W
1-215-476-00	s RES, METAL	200k	1% 1/6W
1-215-477-00	s RES, METAL	220k	1% 1/6W
1-215-478-00	s RES, METAL	240k	1% 1/6W
1-215-479-00	s RES, METAL	270k	1% 1/6W
1-215-480-00	s RES, METAL	300k	1% 1/6W
1-215-481-00	s RES, METAL	330k	1% 1/6W
1-215-482-00	s RES, METAL	360k	1% 1/6W
1-215-483-00	s RES, METAL	390k	1% 1/6W
1-215-484-00	s RES, METAL	430k	1% 1/6W
1-215-485-00	s RES, METAL	470k	1% 1/6W
1-215-486-00	s RES, METAL	510k	1% 1/6W
1-215-487-00	s RES, METAL	560k	1% 1/6W
1-215-488-00	s RES, METAL	620k	1% 1/6W
1-215-489-00	s RES, METAL	680k	1% 1/6W
1-215-490-00	s RES, METAL	750k	1% 1/6W
1-215-491-00	s RES, METAL	820k	1% 1/6W
1-215-492-00	s RES, METAL	910k	1% 1/6W

(RESISTOR, METAL)

Part No. SP Description

1-215-493-00 s RES, METAL 1.0M 1% 1/6W

CONNECTOR

Part No. SP Description

1-506-467-11 o RECEPTACLE 2P MALE (STRAIGHT TYPE)
1-506-481-11 o RECEPTACLE 2P MALE (ANGLE TYPE)
1-562-147-11 o HOUSING 2P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-468-11 o RECEPTACLE 3P MALE (STRAIGHT TYPE)
1-506-482-11 o RECEPTACLE 3P MALE (ANGLE TYPE)
1-562-148-11 o HOUSING 3P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-469-11 o RECEPTACLE 4P MALE (STRAIGHT TYPE)
1-506-483-21 o RECEPTACLE 4P MALE (ANGLE TYPE)
1-562-149-11 o HOUSING 4P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-470-11 o RECEPTACLE 5P MALE (STRAIGHT TYPE)
1-506-484-11 o RECEPTACLE 5P MALE (ANGLE TYPE)
1-562-150-11 o HOUSING 5P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-471-31 o RECEPTACLE 6P MALE (STRAIGHT TYPE)
1-506-485-11 o RECEPTACLE 6P MALE (ANGLE TYPE)
1-562-151-11 o HOUSING 6P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-472-11 o RECEPTACLE 7P MALE (STRAIGHT TYPE)
1-506-486-11 o RECEPTACLE 7P MALE (ANGLE TYPE)
1-562-152-11 o HOUSING 7P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-473-11 o RECEPTACLE 8P MALE (STRAIGHT TYPE)
1-506-487-11 o RECEPTACLE 8P MALE (ANGLE TYPE)
1-562-153-11 o HOUSING 8P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-474-11 o RECEPTACLE 9P MALE (STRAIGHT TYPE)
1-506-488-11 o RECEPTACLE 9P MALE (ANGLE TYPE)
1-562-154-11 o HOUSING 9P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-475-11 o RECEPTACLE 10P MALE (STRAIGHT TYPE)
1-506-489-11 o RECEPTACLE 10P MALE (ANGLE TYPE)
1-562-155-11 o HOUSING 10P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-476-11 o RECEPTACLE 11P MALE (STRAIGHT TYPE)
1-506-490-21 o RECEPTACLE 11P MALE (ANGLE TYPE)
1-562-156-11 o HOUSING 11P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-477-11 o RECEPTACLE 12P MALE (STRAIGHT TYPE)
1-506-491-11 o RECEPTACLE 12P MALE (ANGLE TYPE)
1-562-157-11 o HOUSING 12P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

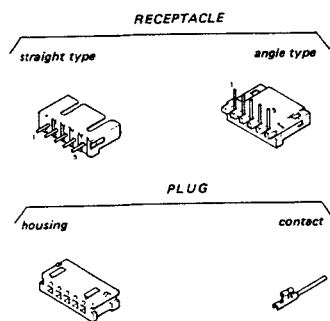
1-506-478-11 o RECEPTACLE 13P MALE (STRAIGHT TYPE)
1-506-492-11 o RECEPTACLE 13P MALE (ANGLE TYPE)
1-562-627-11 o HOUSING 13P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

(CONNECTOR)

Part No. SP Description

1-506-479-11 o RECEPTACLE 14P MALE (STRAIGHT TYPE)
1-506-493-11 o RECEPTACLE 14P MALE (ANGLE TYPE)
1-562-185-11 o HOUSING 14P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-480-11 o RECEPTACLE 15P MALE (STRAIGHT TYPE)
1-506-494-11 o RECEPTACLE 15P MALE (ANGLE TYPE)
1-562-958-11 o HOUSING 15P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32



INDUCTOR, MICRO

Part No. SP Description

1-408-397-00 s INDUCTOR, MICRO 1.0 5%
1-408-399-00 s INDUCTOR, MICRO 1.5 5%
1-408-400-00 s INDUCTOR, MICRO 1.8 5%
1-408-401-00 s INDUCTOR, MICRO 2.2 5%
1-408-403-00 s INDUCTOR, MICRO 3.3 5%

1-408-404-00 s INDUCTOR, MICRO 3.9 5%
1-408-405-00 s INDUCTOR, MICRO 4.7 5%
1-408-406-00 s INDUCTOR, MICRO 5.6 5%
1-408-407-00 s INDUCTOR, MICRO 6.8 5%
1-408-408-00 s INDUCTOR, MICRO 8.2 5%

1-408-409-00 s INDUCTOR, MICRO 10 5%
1-408-410-00 s INDUCTOR, MICRO 12 5%
1-408-411-00 s INDUCTOR, MICRO 15 5%
1-408-412-00 s INDUCTOR, MICRO 18 5%
1-408-413-00 s INDUCTOR, MICRO 22 5%

1-408-414-00 s INDUCTOR, MICRO 27 5%
1-408-415-00 s INDUCTOR, MICRO 33 5%
1-408-416-00 s INDUCTOR, MICRO 39 5%
1-408-417-00 s INDUCTOR, MICRO 47 5%
1-408-418-00 s INDUCTOR, MICRO 56 5%

1-408-419-00 s INDUCTOR, MICRO 68 5%
1-408-420-00 s INDUCTOR, MICRO 82 5%
1-408-421-00 s INDUCTOR, MICRO 100 5%
1-408-422-00 s INDUCTOR, MICRO 120 5%
1-408-423-00 s INDUCTOR, MICRO 150 5%

1-408-424-00 s INDUCTOR, MICRO 180 5%
1-408-425-00 s INDUCTOR, MICRO 220 5%
1-408-426-00 s INDUCTOR, MICRO 270 5%
1-408-427-00 s INDUCTOR, MICRO 330 5%
1-408-428-00 s INDUCTOR, MICRO 390 5%

1-408-429-00 s INDUCTOR, MICRO 470 5%
1-410-116-11 s INDUCTOR, MICRO 560 5%
1-410-492-11 s INDUCTOR, MICRO 680 5%
1-410-493-11 s INDUCTOR, MICRO 820 5%
1-410-494-11 s INDUCTOR, MICRO 1000 5%

AA-16 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	AA-6713-363-A	o MOUNTED CIRCUIT BOARD, AA-16
C1	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C10	1-124-477-11	s ELECT 47uF 20% 25V
C11	1-124-477-11	s ELECT 47uF 20% 25V
C12	1-162-207-31	s CERAMIC 22PF 5% 50V
C13	1-124-120-11	s ELECT 220uF 20% 25V
C100	1-126-103-11	s ELECT 470uF 20% 16V
C101	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C110	1-124-477-11	s ELECT 47uF 20% 25V
C111	1-124-477-11	s ELECT 47uF 20% 25V
C112	1-162-207-31	s CERAMIC 22PF 5% 50V
C113	1-124-120-11	s ELECT 220uF 20% 25V
C150	1-161-379-00	s CERAMIC 0.01uF 20% 25V
D10	8-719-911-19	s DIODE 1SS119
D11	8-719-911-19	s DIODE 1SS119
D110	8-719-911-19	s DIODE 1SS119
D111	8-719-911-19	s DIODE 1SS119
D150	8-719-109-93	s DIODE RD6.2ESB2
IC101	8-759-981-98	s IC RC4560DD
PS1	A1-532-727-11	s LINK, IC 0.25A
Q10	8-729-306-92	s TRANSISTOR 2SD669A
Q11	8-729-304-92	s TRANSISTOR 2SB649A
Q12	8-729-201-05	s TRANSISTOR 2SC2878-B
Q110	8-729-306-92	s TRANSISTOR 2SD669A
Q111	8-729-304-92	s TRANSISTOR 2SB649A
Q112	8-729-201-05	s TRANSISTOR 2SC2878-B
R1	1-247-826-00	s CARBON 620 5% 1/4W
R18	1-249-478-11	s CARBON 2.2 5% 1/2W
R19	1-249-478-11	s CARBON 2.2 5% 1/2W
R101	1-247-826-00	s CARBON 620 5% 1/4W
R118	1-249-478-11	s CARBON 2.2 5% 1/2W
R119	1-249-478-11	s CARBON 2.2 5% 1/2W
T1	1-423-261-11	s TRANSFORMER, INPUT
T10	1-427-586-11	s TRANSFORMER, INPUT/OUTPUT
T101	1-423-261-11	s TRANSFORMER, INPUT
T110	1-427-586-11	s TRANSFORMER, INPUT/OUTPUT

AC-98 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-630-457-13	o PRINTED CIRCUIT BOARD, AC-98 (S/N 10001 through 10300)
1pc	1-630-457-12	o PRINTED CIRCUIT BOARD, AC-98 (S/N 10501 and higher)
2pcs	1-533-189-11	o HOLDER, FUSE
C1	A1-136-527-12	s FILM 0.47uF 20% 250V
C2	A1-136-527-12	s FILM 0.47uF 20% 250V
C3	1-136-527-12	s FILM 0.47uF 20% 250V
CN1000	A1-506-371-00	o CONNECTOR, 2P, MALE
L1	A1-424-260-11	s FILTER, LINE
L2	A1-424-260-11	s FILTER, LINE
R1	1-214-937-00	s METAL 1M 1% 1/2W

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

 AU-124 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	AA-6713-362-A	o MOUNTED CIRCUIT BOARD, AU-124
2pcs	3-646-090-00	s RIVET, NYLON
2pcs	3-657-153-00	o HINGE
5pcs	7-682-903-11	s SCREW +PMW 3X6
2pcs	3-733-616-01	o SHEET, INSULATING, AU
C1	1-124-477-11	s ELECT 47uF 20% 25V
C2	1-123-875-11	s ELECT 10uF 20% 50V
C3	1-124-477-11	s ELECT 47uF 20% 25V
C6	1-123-875-11	s ELECT 10uF 20% 50V
C10	1-126-101-11	s ELECT 100uF 20% 16V
C11	1-123-875-11	s ELECT 10uF 20% 50V
C12	1-124-477-11	s ELECT 47uF 20% 25V
C13	1-124-443-00	s ELECT 100uF 20% 10V
C14	1-162-199-31	s CERAMIC 10PF 5% 50V
C15	1-123-875-11	s ELECT 10uF 20% 50V
C16	1-123-875-11	s ELECT 10uF 20% 50V
C19	1-123-875-11	s ELECT 10uF 20% 50V
C20	1-123-875-11	s ELECT 10uF 20% 50V
C22	1-123-875-11	s ELECT 10uF 20% 50V
C51	1-124-477-11	s ELECT 47uF 20% 25V
C52	1-124-477-11	s ELECT 47uF 20% 25V
C53	1-123-875-11	s ELECT 10uF 20% 50V
C54	1-124-499-11	s ELECT, NONPOLAR 1uF 20% 50V
C56	1-124-477-11	s ELECT 47uF 20% 25V
C57	1-123-875-11	s ELECT 10uF 20% 50V
C58	1-123-875-11	s ELECT 10uF 20% 50V
C59	1-124-443-00	s ELECT 100uF 20% 10V
C60	1-124-477-11	s ELECT 47uF 20% 25V
C61	1-124-120-11	s ELECT 220uF 20% 25V
C62	1-124-120-11	s ELECT 220uF 20% 25V
C63	1-126-101-11	s ELECT 100uF 20% 16V
C64	1-123-875-11	s ELECT 10uF 20% 50V
C65	1-124-443-00	s ELECT 100uF 20% 10V
C66	1-124-477-11	s ELECT 47uF 20% 25V
C69	1-124-120-11	s ELECT 220uF 20% 25V
C70	1-124-477-11	s ELECT 47uF 20% 25V
C71	1-124-477-11	s ELECT 47uF 20% 25V
C72	1-131-350-00	s TANTALUM 3.3uF 10% 35V
C73	1-124-477-11	s ELECT 47uF 20% 25V
C101	1-123-332-00	s ELECT 47uF 20% 25V
C102	1-162-286-31	s CERAMIC 220PF 10% 50V
C103	1-131-351-00	s TANTALUM 4.7uF 10% 35V
C104	1-123-356-00	s ELECT 10uF 20% 50V
C105	1-124-443-00	s ELECT 100uF 20% 10V
C107	1-123-875-11	s ELECT 10uF 20% 50V
C108	1-124-477-11	s ELECT 47uF 20% 25V
C112	1-123-875-11	s ELECT 10uF 20% 50V
C113	1-123-875-11	s ELECT 10uF 20% 50V
C151	1-109-621-00	s MICA 220PF 1% 500V
C152	1-162-290-31	s CERAMIC 470PF 10% 50V
C153	1-123-875-11	s ELECT 10uF 20% 50V
C154	1-123-875-11	s ELECT 10uF 20% 50V
C155	1-123-332-00	s ELECT 47uF 20% 25V
C156	1-123-875-11	s ELECT 10uF 20% 50V
C158	1-123-875-11	s ELECT 10uF 20% 50V
C159	1-123-875-11	s ELECT 10uF 20% 50V
C162	1-162-219-31	s CERAMIC 68PF 5% 50V
C163	1-123-875-11	s ELECT 10uF 20% 50V

(AU-124 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C201	1-123-875-11	s ELECT 10uF 20% 50V
C203	1-123-875-11	s ELECT 10uF 20% 50V
C204	1-124-477-11	s ELECT 47uF 20% 25V
C205	1-123-875-11	s ELECT 10uF 20% 50V
C207	1-124-477-11	s ELECT 47uF 20% 25V
C208	1-126-101-11	s ELECT 100uF 20% 16V
C209	1-123-875-11	s ELECT 10uF 20% 50V
C210	1-124-477-11	s ELECT 47uF 20% 25V
C211	1-124-443-00	s ELECT 100uF 20% 10V
C212	1-162-199-31	s CERAMIC 10PF 5% 50V
C213	1-123-875-11	s ELECT 10uF 20% 50V
C214	1-123-875-11	s ELECT 10uF 20% 50V
C217	1-123-875-11	s ELECT 10uF 20% 50V
C245	1-124-499-11	s ELECT, NONPOLAR 1uF 20% 50V
C251	1-124-477-11	s ELECT 47uF 20% 25V
C252	1-124-477-11	s ELECT 47uF 20% 25V
C253	1-123-875-11	s ELECT 10uF 20% 50V
C255	1-131-350-00	s TANTALUM 3.3uF 10% 35V
C301	1-123-332-00	s ELECT 47uF 20% 25V
C303	1-131-351-00	s TANTALUM 4.7uF 10% 35V
C304	1-162-286-31	s CERAMIC 220PF 10% 50V
C307	1-123-875-11	s ELECT 10uF 20% 50V
C309	1-123-356-00	s ELECT 10uF 20% 50V
C310	1-126-101-11	s ELECT 100uF 20% 16V
C311	1-124-443-00	s ELECT 100uF 20% 10V
C313	1-123-875-11	s ELECT 10uF 20% 50V
C314	1-124-477-11	s ELECT 47uF 20% 25V
C318	1-123-875-11	s ELECT 10uF 20% 50V
C319	1-123-875-11	s ELECT 10uF 20% 50V
C321	1-124-477-11	s ELECT 47uF 20% 25V
C351	1-109-621-00	s MICA 220PF 1% 500V
C352	1-162-290-31	s CERAMIC 470PF 10% 50V
C353	1-123-875-11	s ELECT 10uF 20% 50V
C354	1-123-875-11	s ELECT 10uF 20% 50V
C355	1-123-332-00	s ELECT 47uF 20% 25V
C356	1-123-875-11	s ELECT 10uF 20% 50V
C358	1-123-875-11	s ELECT 10uF 20% 50V
C361	1-162-219-31	s CERAMIC 68PF 5% 50V
C362	1-123-875-11	s ELECT 10uF 20% 50V
C363	1-123-875-11	s ELECT 10uF 20% 50V
C401	1-123-875-11	s ELECT 10uF 20% 50V
C402	1-123-875-11	s ELECT 10uF 20% 50V
C403	1-131-349-00	s TANTALUM 2.2uF 10% 35V
C404	1-124-925-11	s ELECT 2.2uF 20% 100V
C451	1-131-349-00	s TANTALUM 2.2uF 10% 35V
C452	1-123-875-11	s ELECT 10uF 20% 50V
C453	1-123-875-11	s ELECT 10uF 20% 50V
C501	1-126-101-11	s ELECT 100uF 20% 16V
C502	1-124-477-11	s ELECT 47uF 20% 25V
C503	1-124-477-11	s ELECT 47uF 20% 25V
C504	1-124-360-00	s ELECT 1000uF 20% 16V
C601	1-123-875-11	s ELECT 10uF 20% 50V
C602	1-124-482-11	s ELECT 33uF 20% 35V
C603	1-124-477-11	s ELECT 47uF 20% 25V
C614	1-124-477-11	s ELECT 47uF 20% 25V
C701	1-162-286-31	s CERAMIC 220PF 10% 50V
C703	1-162-286-31	s CERAMIC 220PF 10% 50V
C704	1-162-284-31	s CERAMIC 150PF 10% 50V
C710	1-162-286-31	s CERAMIC 220PF 10% 50V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(AU-124 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C711	1-162-286-31 s	CERAMIC 220PF 10% 50V
C712	1-161-379-00 s	CERAMIC 0.01uF 20% 25V
C713	1-161-379-00 s	CERAMIC 0.01uF 20% 25V
C714	1-129-718-00 s	FILM 0.022uF 10% 630V
C715	1-131-350-00 s	TANTALUM 3.3uF 10% 35V
C716	1-131-367-00 s	TANTALUM 22uF 10% 20V
C719	1-162-286-31 s	CERAMIC 220PF 10% 50V
C721	1-162-286-31 s	CERAMIC 220PF 10% 50V
C722	1-162-284-31 s	CERAMIC 150PF 10% 50V
C728	1-162-286-31 s	CERAMIC 220PF 10% 50V
C729	1-162-286-31 s	CERAMIC 220PF 10% 50V
C730	1-161-379-00 s	CERAMIC 0.01uF 20% 25V
C731	1-129-718-00 s	FILM 0.022uF 10% 630V
C732	1-131-350-00 s	TANTALUM 3.3uF 10% 35V
C733	1-131-367-00 s	TANTALUM 22uF 10% 20V
C736	1-162-286-31 s	CERAMIC 220PF 10% 50V
C738	1-162-284-31 s	CERAMIC 150PF 10% 50V
C739	1-131-352-00 s	TANTALUM 6.8uF 10% 35V
C740	1-162-215-31 s	CERAMIC 47PF 5% 50V
C743	1-162-286-31 s	CERAMIC 220PF 10% 50V
C744	1-162-286-31 s	CERAMIC 220PF 10% 50V
C745	1-161-379-00 s	CERAMIC 0.01uF 20% 25V
C746	1-161-379-00 s	CERAMIC 0.01uF 20% 25V
C748	1-131-348-00 s	TANTALUM 1.5uF 10% 35V
C749	1-162-286-31 s	CERAMIC 220PF 10% 50V
C751	1-162-286-31 s	CERAMIC 220PF 10% 50V
C752	1-162-284-31 s	CERAMIC 150PF 10% 50V
C753	1-131-352-00 s	TANTALUM 6.8uF 10% 35V
C754	1-162-215-31 s	CERAMIC 47PF 5% 50V
C757	1-162-286-31 s	CERAMIC 220PF 10% 50V
C758	1-162-286-31 s	CERAMIC 220PF 10% 50V
C759	1-161-379-00 s	CERAMIC 0.01uF 20% 25V
C761	1-131-348-00 s	TANTALUM 1.5uF 10% 35V
C762	1-109-621-00 s	MICA 220PF 1% 500V
C763	1-109-621-00 s	MICA 220PF 1% 500V
C764	1-162-286-31 s	CERAMIC 220PF 10% 50V
C765	1-161-379-00 s	CERAMIC 0.01uF 20% 25V
C766	1-162-215-31 s	CERAMIC 47PF 5% 50V
C767	1-162-215-31 s	CERAMIC 47PF 5% 50V
C769	1-161-379-00 s	CERAMIC 0.01uF 20% 25V
C770	1-126-103-11 s	ELECT 470uF 20% 16V
C771	1-162-211-31 s	CERAMIC 33PF 5% 50V
C772	1-162-211-31 s	CERAMIC 33PF 5% 50V
C773	1-161-379-00 s	CERAMIC 0.01uF 20% 25V
C774	1-162-288-31 s	CERAMIC 330PF 10% 50V
C775	1-161-379-00 s	CERAMIC 0.01uF 20% 25V
C776	1-162-219-31 s	CERAMIC 68PF 5% 50V
C779	1-162-219-31 s	CERAMIC 68PF 5% 50V
CN202	1-506-471-11 s	CONNECTOR, 6P, MALE
CN206	1-506-471-11 s	CONNECTOR, 6P, MALE
CN209	1-506-471-11 o	CONNECTOR, 6P, MALE
CN218	1-506-471-11 o	CONNECTOR, 6P, MALE
CP601	1-464-805-11 s	OSCILLATOR, BIAS
D2	8-719-911-19 s	DIODE 1SS119
D5	8-719-911-19 s	DIODE 1SS119
D7	8-729-105-68 s	TRANSISTOR 2SC3356-K
D8	8-729-105-68 s	TRANSISTOR 2SC3356-K
D9	8-719-911-19 s	DIODE 1SS119

(AU-124 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D10	8-719-911-19 s	DIODE 1SS119
D51	8-719-911-19 s	DIODE 1SS119
D52	8-719-911-19 s	DIODE 1SS119
D53	8-719-911-19 s	DIODE 1SS119
D54	8-719-911-19 s	DIODE 1SS119
D101	8-719-911-19 s	DIODE 1SS119
D102	8-719-911-19 s	DIODE 1SS119
D103	8-719-911-19 s	DIODE 1SS119
D104	8-729-105-68 s	TRANSISTOR 2SC3356-K
D151	8-729-105-68 s	TRANSISTOR 2SC3356-K
D201	8-719-911-19 s	DIODE 1SS119
D202	8-719-911-19 s	DIODE 1SS119
D204	8-729-105-68 s	TRANSISTOR 2SC3356-K
D205	8-719-911-19 s	DIODE 1SS119
D206	8-719-911-19 s	DIODE 1SS119
D207	8-719-911-19 s	DIODE 1SS119
D251	8-719-911-19 s	DIODE 1SS119
D301	8-719-911-19 s	DIODE 1SS119
D302	8-719-911-19 s	DIODE 1SS119
D303	8-719-911-19 s	DIODE 1SS119
D351	8-729-105-68 s	TRANSISTOR 2SC3356-K
D401	8-729-105-68 s	TRANSISTOR 2SC3356-K
D451	8-729-105-68 s	TRANSISTOR 2SC3356-K
D501	8-729-105-68 s	TRANSISTOR 2SC3356-K
D504	8-719-200-02 s	DIODE 10E2
D505	8-719-200-02 s	DIODE 10E2
D506	8-719-911-19 s	DIODE 1SS119
D507	8-719-109-51 s	DIODE RD2.0ES-B2
D508	8-719-911-19 s	DIODE 1SS119
D701	8-719-911-19 s	DIODE 1SS119
D702	8-719-911-19 s	DIODE 1SS119
D703	8-719-109-96 s	DIODE RD6.8ESB1
D704	8-719-109-88 s	DIODE RD5.6ESB1
IC1	8-759-982-02 s	IC RC4562DD
IC2	8-759-208-10 s	IC TC4053BPHB
IC3	8-759-982-02 s	IC RC4562DD
IC51	8-759-802-46 s	IC LA4550
IC101	8-759-981-57 s	IC RC2043DD
IC102	8-759-982-02 s	IC RC4562DD
IC151	8-759-981-90 s	IC RC4558DD
IC202	8-759-208-10 s	IC TC4053BPHB
IC351	8-759-981-90 s	IC RC4558DD
IC501	8-759-981-98 s	IC RC4560DD
IC502	8-759-981-98 s	IC RC4560DD
IC503	8-759-240-24 s	IC TC4024BP
IC504	8-759-240-69 s	IC TC4069UBP
L1	1-407-519-00 s	INDUCTOR 8uH
L201	1-407-519-00 s	INDUCTOR 8uH
L700	1-459-155-00 s	COIL 45uH
LV101	1-410-856-12 s	COIL, VAR 22mH
LV102	1-410-856-12 s	COIL, VAR 22mH
LV151	1-410-856-12 s	COIL, VAR 22mH
LV152	1-410-856-12 s	COIL, VAR 22mH
LV301	1-410-856-12 s	COIL, VAR 22mH
LV302	1-410-856-12 s	COIL, VAR 22mH
LV351	1-410-856-12 s	COIL, VAR 22mH
LV352	1-410-856-12 s	COIL, VAR 22mH
LV701	1-407-306-00 s	INDUCTOR, VAR 28mH

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(AU-124 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
LV702	1-407-306-00	s INDUCTOR, VAR 28mH
LV703	1-407-306-00	s INDUCTOR, VAR 28mH
LV704	1-407-300-00	s INDUCTOR, VAR 7.1mH
LV705	1-407-306-00	s INDUCTOR, VAR 28mH
LV706	1-407-300-00	s INDUCTOR, VAR 7.1mH
PS100	▲1-532-727-11	s LINK, IC 0.25A
Q3	8-729-119-78	s TRANSISTOR 2SC2785
Q4	8-729-119-78	s TRANSISTOR 2SC2785
Q5	8-729-119-78	s TRANSISTOR 2SC2785
Q6	8-729-119-78	s TRANSISTOR 2SC2785
Q7	8-729-201-05	s TRANSISTOR 2SC2878-B
Q8	8-729-119-78	s TRANSISTOR 2SC2785
Q51	8-729-201-05	s TRANSISTOR 2SC2878-B
Q52	8-729-119-78	s TRANSISTOR 2SC2785
Q53	8-729-119-78	s TRANSISTOR 2SC2785
Q54	8-729-201-05	s TRANSISTOR 2SC2878-B
Q55	8-729-201-05	s TRANSISTOR 2SC2878-B
Q56	8-729-119-76	s TRANSISTOR 2SA1175
Q101	8-729-178-55	s TRANSISTOR 2SC2785-E
Q102	8-729-178-55	s TRANSISTOR 2SC2785-E
Q103	8-729-119-76	s TRANSISTOR 2SA1175
Q105	8-729-201-05	s TRANSISTOR 2SC2878-B
Q106	8-729-201-05	s TRANSISTOR 2SC2878-B
Q151	8-729-201-05	s TRANSISTOR 2SC2878-B
Q152	8-729-119-78	s TRANSISTOR 2SC2785
Q153	8-729-119-78	s TRANSISTOR 2SC2785
Q154	8-729-201-05	s TRANSISTOR 2SC2878-B
Q201	8-729-119-78	s TRANSISTOR 2SC2785
Q202	8-729-119-78	s TRANSISTOR 2SC2785
Q203	8-729-119-78	s TRANSISTOR 2SC2785
Q204	8-729-119-78	s TRANSISTOR 2SC2785
Q206	8-729-201-05	s TRANSISTOR 2SC2878-B
Q207	8-729-119-78	s TRANSISTOR 2SC2785
Q208	8-729-119-78	s TRANSISTOR 2SC2785
Q209	8-729-119-76	s TRANSISTOR 2SA1175
Q251	8-729-201-05	s TRANSISTOR 2SC2878-B
Q252	8-729-119-78	s TRANSISTOR 2SC2785
Q301	8-729-178-55	s TRANSISTOR 2SC2785-E
Q302	8-729-178-55	s TRANSISTOR 2SC2785-E
Q303	8-729-119-76	s TRANSISTOR 2SA1175
Q304	8-729-201-05	s TRANSISTOR 2SC2878-B
Q305	8-729-119-78	s TRANSISTOR 2SC2785
Q306	8-729-201-05	s TRANSISTOR 2SC2878-B
Q351	8-729-201-05	s TRANSISTOR 2SC2878-B
Q352	8-729-119-78	s TRANSISTOR 2SC2785
Q353	8-729-119-78	s TRANSISTOR 2SC2785
Q354	8-729-201-05	s TRANSISTOR 2SC2878-B
Q401	8-729-119-78	s TRANSISTOR 2SC2785
Q402	8-729-119-76	s TRANSISTOR 2SA1175
Q403	8-729-119-76	s TRANSISTOR 2SA1175
Q451	8-729-119-78	s TRANSISTOR 2SC2785
Q452	8-729-119-76	s TRANSISTOR 2SA1175
Q501	8-729-119-78	s TRANSISTOR 2SC2785
Q502	8-729-113-31	s TRANSISTOR 2SB733-2
Q503	8-729-119-76	s TRANSISTOR 2SA1175
Q601	8-729-201-05	s TRANSISTOR 2SC2878-B
Q602	8-729-119-76	s TRANSISTOR 2SA1175
Q605	8-729-900-65	s TRANSISTOR DTA144ES

(AU-124 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q608	8-729-177-32	s TRANSISTOR 2SD773
Q701	8-729-119-78	s TRANSISTOR 2SC2785
Q705	8-729-119-76	s TRANSISTOR 2SA1175
Q706	8-729-119-78	s TRANSISTOR 2SC2785
Q707	8-729-905-53	s TRANSISTOR 2SD1055-R
Q708	8-729-982-22	s TRANSISTOR 2SB822
Q709	8-729-119-76	s TRANSISTOR 2SA1175
Q710	8-729-201-05	s TRANSISTOR 2SC2878-B
Q711	8-729-201-05	s TRANSISTOR 2SC2878-B
Q712	8-729-119-78	s TRANSISTOR 2SC2785
Q716	8-729-119-76	s TRANSISTOR 2SA1175
Q717	8-729-119-78	s TRANSISTOR 2SC2785
Q718	8-729-905-53	s TRANSISTOR 2SD1055-R
Q719	8-729-982-22	s TRANSISTOR 2SB822
Q720	8-729-119-76	s TRANSISTOR 2SA1175
Q721	8-729-201-05	s TRANSISTOR 2SC2878-B
Q722	8-729-201-05	s TRANSISTOR 2SC2878-B
Q723	8-729-119-78	s TRANSISTOR 2SC2785
Q724	8-729-119-76	s TRANSISTOR 2SA1175
Q725	8-729-201-05	s TRANSISTOR 2SC2878-B
Q726	8-729-201-05	s TRANSISTOR 2SC2878-B
Q727	8-729-119-78	s TRANSISTOR 2SC2785
Q728	8-729-119-76	s TRANSISTOR 2SA1175
Q729	8-729-119-78	s TRANSISTOR 2SC2785
Q730	8-729-905-53	s TRANSISTOR 2SD1055-R
Q731	8-729-982-22	s TRANSISTOR 2SB822
Q732	8-729-119-78	s TRANSISTOR 2SC2785
Q733	8-729-119-76	s TRANSISTOR 2SA1175
Q734	8-729-201-05	s TRANSISTOR 2SC2878-B
Q735	8-729-201-05	s TRANSISTOR 2SC2878-B
Q736	8-729-119-78	s TRANSISTOR 2SC2785
Q737	8-729-119-76	s TRANSISTOR 2SA1175
Q738	8-729-119-78	s TRANSISTOR 2SC2785
Q739	8-729-905-53	s TRANSISTOR 2SD1055-R
Q740	8-729-982-22	s TRANSISTOR 2SB822
Q744	8-729-900-74	s TRANSISTOR DTC143TS
Q745	8-729-900-74	s TRANSISTOR DTC143TS
Q746	8-729-900-65	s TRANSISTOR DTA144ES
R10	1-247-903-00	s CARBON 1M 5% 1/4W
R19	1-247-887-00	s CARBON 220K 5% 1/4W
R40	1-247-891-00	s CARBON 330K 5% 1/4W
R117	1-247-887-00	s CARBON 220K 5% 1/4W
R124	1-247-881-00	s CARBON 120K 5% 1/4W
R126	1-247-881-00	s CARBON 120K 5% 1/4W
R159	1-247-883-00	s CARBON 150K 5% 1/4W
R204	1-247-891-00	s CARBON 330K 5% 1/4W
R216	1-247-887-00	s CARBON 220K 5% 1/4W
R316	1-247-903-00	s CARBON 1M 5% 1/4W
R321	1-247-887-00	s CARBON 220K 5% 1/4W
R327	1-247-881-00	s CARBON 120K 5% 1/4W
R329	1-247-881-00	s CARBON 120K 5% 1/4W
R359	1-247-883-00	s CARBON 150K 5% 1/4W
R709	1-247-895-00	s CARBON 470K 5% 1/4W
R712	1-247-903-00	s CARBON 1M 5% 1/4W
R716	1-249-480-11	s CARBON 3.3 5% 1/2W
R717	1-249-480-11	s CARBON 3.3 5% 1/2W
R732	1-247-895-00	s CARBON 470K 5% 1/4W
R741	1-249-480-11	s CARBON 3.3 5% 1/2W

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(AU-124 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R742	1-249-480-11	s CARBON 3.3 5% 1/2W
R758	1-247-887-00	s CARBON 220K 5% 1/4W
R767	1-249-480-11	s CARBON 3.3 5% 1/2W
R768	1-249-480-11	s CARBON 3.3 5% 1/2W
R777	1-247-887-00	s CARBON 220K 5% 1/4W
R787	1-249-480-11	s CARBON 3.3 5% 1/2W
R788	1-249-480-11	s CARBON 3.3 5% 1/2W
R799	1-247-895-00	s CARBON 470K 5% 1/4W
R800	1-247-731-11	s CARBON 22 5% 1/2W
R803	1-247-895-00	s CARBON 470K 5% 1/4W
R804	1-247-731-11	s CARBON 22 5% 1/2W
RV1	1-228-996-00	s RES, ADJ, METAL 47K
RV51	1-228-990-00	s RES, ADJ, METAL 1K
RV101	1-228-994-00	s RES, ADJ, METAL 10K
RV102	1-228-994-00	s RES, ADJ, METAL 10K
RV103	1-228-994-00	s RES, ADJ, METAL 10K
RV104	1-228-993-00	s RES, ADJ, METAL 4.7K
RV151	1-228-993-00	s RES, ADJ, METAL 4.7K
RV152	1-228-994-00	s RES, ADJ, METAL 10K
RV153	1-228-998-00	s RES, ADJ, METAL 220K
RV154	1-228-998-00	s RES, ADJ, METAL 220K
RV201	1-228-996-00	s RES, ADJ, METAL 47K
RV251	1-228-990-00	s RES, ADJ, METAL 1K
RV301	1-228-994-00	s RES, ADJ, METAL 10K
RV302	1-228-994-00	s RES, ADJ, METAL 10K
RV303	1-228-994-00	s RES, ADJ, METAL 10K
RV304	1-228-993-00	s RES, ADJ, METAL 4.7K
RV351	1-228-993-00	s RES, ADJ, METAL 4.7K
RV352	1-228-994-00	s RES, ADJ, METAL 10K
RV353	1-228-998-00	s RES, ADJ, METAL 220K
RV354	1-228-998-00	s RES, ADJ, METAL 220K
RV401	1-228-998-00	s RES, ADJ, METAL 220K
RV402	1-228-998-00	s RES, ADJ, METAL 220K
RV403	1-228-998-00	s RES, ADJ, METAL 220K
RV404	1-228-999-00	s RES, ADJ, METAL 470K
RV405	1-228-998-00	s RES, ADJ, METAL 220K
RV406	1-228-999-00	s RES, ADJ, METAL 470K
RV604	1-228-994-00	s RES, ADJ, METAL 10K
X301	1-567-875-11	s RESONATOR, CERAMIC 2.27MHz

BC-16A BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6727-093-A	o MOUNTED CIRCUIT BOARD, BC-16A
C100	1-102-110-00	s CERAMIC 220PF 10% 50V
C401	1-124-443-00	s ELECT 100uF 20% 10V
C402	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C403	1-162-210-31	s CERAMIC 30PF 5% 50V
C404	1-162-210-31	s CERAMIC 30PF 5% 50V
C405	1-162-292-31	s CERAMIC 680PF 10% 50V
C406	1-124-443-00	s ELECT 100uF 20% 10V
C407	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C408	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C801	1-161-494-00	s CERAMIC 0.022uF 25V
C802	1-161-494-00	s CERAMIC 0.022uF 25V
C803	1-124-443-00	s ELECT 100uF 20% 10V
C804	1-161-494-00	s CERAMIC 0.022uF 25V
C805	1-161-494-00	s CERAMIC 0.022uF 25V
C806	1-124-477-11	s ELECT 47uF 20% 25V
C809	1-123-875-11	s ELECT 10uF 20% 50V
C810	1-162-718-11	s CERAMIC 220PF 1% 50V
C811	1-161-039-00	s CERAMIC 0.001uF 10% 50V
C812	1-124-925-11	s ELECT 2.2uF 20% 100V
C814	1-161-039-00	s CERAMIC 0.001uF 10% 50V
C815	1-124-925-11	s ELECT 2.2uF 20% 100V
C817	1-162-718-11	s CERAMIC 220PF 1% 50V
C818	1-161-494-00	s CERAMIC 0.022uF 25V
C819	1-124-443-00	s ELECT 100uF 20% 10V
C820	1-161-494-00	s CERAMIC 0.022uF 25V
C821	1-161-494-00	s CERAMIC 0.022uF 25V
C822	1-161-494-00	s CERAMIC 0.022uF 25V
C823	1-161-494-00	s CERAMIC 0.022uF 25V
C824	1-161-494-00	s CERAMIC 0.022uF 25V
C825	1-102-110-00	s CERAMIC 220PF 10% 50V
D801	8-719-911-19	s DIODE 1SS119
D802	8-719-911-19	s DIODE 1SS119
D803	8-719-911-19	s DIODE 1SS119
D804	8-719-911-19	s DIODE 1SS119
IC401	8-759-944-64	s IC MB88525-179M
IC402	8-759-240-69	s IC TC4069UBP
IC403	8-759-240-69	s IC TC4069UBP
IC801	8-759-240-69	s IC TC4069UBP
IC802	8-759-240-69	s IC TC4069UBP
IC803	8-759-990-82	s IC TL082CP
IC804	8-759-990-82	s IC TL082CP
IC805	8-759-240-81	s IC TC4081BP
IC806	8-757-928-00	s IC CX-7928
L801	1-410-482-31	s INDUCTOR 100uH
L802	1-410-482-31	s INDUCTOR 100uH
Q401	8-729-900-89	s TRANSISTOR DTC144ES
Q403	8-729-900-89	s TRANSISTOR DTC144ES
Q404	8-729-900-89	s TRANSISTOR DTC144ES
Q405	8-729-900-89	s TRANSISTOR DTC144ES
Q406	8-729-900-89	s TRANSISTOR DTC144ES
Q408	8-729-900-89	s TRANSISTOR DTC144ES
Q409	8-729-900-89	s TRANSISTOR DTC144ES
Q410	8-729-900-89	s TRANSISTOR DTC144ES
Q413	8-729-119-78	s TRANSISTOR 2SC2785
Q417	8-729-900-89	s TRANSISTOR DTC144ES
Q418	8-729-900-89	s TRANSISTOR DTC144ES

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(BC-16A BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q425	8-729-900-89 s	TRANSISTOR DTC144ES
Q426	8-729-900-89 s	TRANSISTOR DTC144ES
Q801	8-729-900-36 s	TRANSISTOR DTC124ES
Q802	8-729-119-78 s	TRANSISTOR 2SC2785
Q803	8-729-201-05 s	TRANSISTOR 2SC2878-B
Q804	8-729-119-78 s	TRANSISTOR 2SC2785
Q805	8-729-201-05 s	TRANSISTOR 2SC2878-B
Q806	8-729-119-78 s	TRANSISTOR 2SC2785
Q807	8-729-603-50 s	TRANSISTOR 2SC403SP
Q808	8-729-119-78 s	TRANSISTOR 2SC2785
Q809	8-729-900-36 s	TRANSISTOR DTC124ES
Q810	8-729-900-63 s	TRANSISTOR DTA124ES
Q811	8-729-119-78 s	TRANSISTOR 2SC2785
Q812	8-729-119-78 s	TRANSISTOR 2SC2785
Q813	8-729-900-89 s	TRANSISTOR DTC144ES
R430	1-247-903-00 s	CARBON 1M 5% 1/4W
R805	1-247-862-11 s	CARBON 20K 5% 1/4W
R810	1-247-903-00 s	CARBON 1M 5% 1/4W
R815	1-247-886-11 s	CARBON 200K 5% 1/4W
R816	1-247-892-11 s	CARBON 360K 5% 1/4W
R825	1-247-886-11 s	CARBON 200K 5% 1/4W
R826	1-247-892-11 s	CARBON 360K 5% 1/4W
R831	1-247-818-11 s	CARBON 300 5% 1/4W
R842	1-247-891-00 s	CARBON 330K 5% 1/4W
R846	1-247-891-00 s	CARBON 330K 5% 1/4W
R852	1-249-404-00 s	CARBON 82 5% 1/4W
X401	1-567-143-00 s	RESONATOR, CERAMIC 6.00MHz
X801	1-567-504-11 s	CRYSTAL 4.433619MHz

CC-36 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-627-572-12 o	PRINTED CIRCUIT BOARD, CC-36
IC1	8-719-940-86 s	PHOTOINTERRUPTER GP-1L53
R1	1-247-705-11 s	CARBON 270 5% 1/4W
R2	1-247-717-11 s	CARBON 2.2K 5% 1/4W
R3	1-247-705-11 s	CARBON 270 5% 1/4W
R4	1-247-717-11 s	CARBON 2.2K 5% 1/4W

CC-37 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-627-573-12 o	PRINTED CIRCUIT BOARD, CC-37
IC2	8-719-940-86 s	PHOTOINTERRUPTER GP-1L53 "CASSETTE IN DET"

CP-136 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-629-481-12 o	PRINTED CIRCUIT BOARD, CP-136

DC-31P BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-561-432-00 o	CONTACT, FEMALE
1pc	1-561-424-11 o	HOUSING, 5P
1pc	1-622-221-21 o	PRINTED CIRCUIT BOARD, DC-31A
4pcs	1-533-189-11 o	HOLDER, FUSE
C1	1-124-479-11 s	ELECT 330uF 20% 25V
C2	1-161-379-00 s	CERAMIC 0.01uF 20% 25V
IC1	8-759-938-15 s	IC BA178M05

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

DM-72 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6727-087-A	o MOUNTED CIRCUIT BOARD, DM-72
2pcs	3-683-631-01	o CLAMP
2pcs	3-646-090-00	s RIVET, NYLON
2pcs	3-703-141-00	o HOLDER, PCB
6pcs	7-682-903-11	s SCREW +PWH 3X6
2pcs	3-710-565-01	o HINGE, PRINTED CIRCUIT BOARD
2pcs	3-670-570-31	o SPACER, SUPPORT
1pc	3-683-631-01	o CLAMP
C1	1-161-494-00	s CERAMIC 0.022uF 25V
C2	1-124-589-11	s ELECT 47uF 20% 16V
C3	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C4	1-124-589-11	s ELECT 47uF 20% 16V
C5	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C8	1-124-360-00	s ELECT 1000uF 20% 16V
C11	1-161-494-00	s CERAMIC 0.022uF 25V
C16	1-161-494-00	s CERAMIC 0.022uF 25V
C20	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C21	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C25	1-124-589-11	s ELECT 47uF 20% 16V
C27	1-161-494-00	s CERAMIC 0.022uF 25V
C28	1-161-494-00	s CERAMIC 0.022uF 25V
C29	1-161-494-00	s CERAMIC 0.022uF 25V
C31	1-124-589-11	s ELECT 47uF 20% 16V
C32	1-161-494-00	s CERAMIC 0.022uF 25V
C33	1-161-494-00	s CERAMIC 0.022uF 25V
C35	1-161-494-00	s CERAMIC 0.022uF 25V
C36	1-124-589-11	s ELECT 47uF 20% 16V
C39	1-161-494-00	s CERAMIC 0.022uF 25V
C40	1-162-726-11	s CERAMIC 470PF 1% 50V
C43	1-124-443-00	s ELECT 100uF 20% 10V
C45	1-124-443-00	s ELECT 100uF 20% 10V
C46	1-124-443-00	s ELECT 100uF 20% 10V
C47	1-124-443-00	s ELECT 100uF 20% 10V
C51	1-124-443-00	s ELECT 100uF 20% 10V
C52	1-124-443-00	s ELECT 100uF 20% 10V
C54	1-124-443-00	s ELECT 100uF 20% 10V
C57	1-124-443-00	s ELECT 100uF 20% 10V
C59	1-162-732-11	s CERAMIC 820PF 1% 50V
C60	1-124-589-11	s ELECT 47uF 20% 16V
C62	1-124-589-11	s ELECT 47uF 20% 16V
C63	1-161-494-00	s CERAMIC 0.022uF 25V
C64	1-126-176-11	s ELECT 220uF 20% 10V
C66	1-124-443-00	s ELECT 100uF 20% 10V
C69	1-124-443-00	s ELECT 100uF 20% 10V
C71	1-124-443-00	s ELECT 100uF 20% 10V
C73	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C74	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C75	1-126-157-11	s ELECT 10uF 20% 16V
C76	1-131-349-00	s TANTALUM 2.2uF 10% 35V
C77	1-124-443-00	s ELECT 100uF 20% 10V
C81	1-124-589-11	s ELECT 47uF 20% 16V
C82	1-161-494-00	s CERAMIC 0.022uF 25V
C83	1-126-176-11	s ELECT 220uF 20% 10V
C86	1-126-176-11	s ELECT 220uF 20% 10V
C89	1-124-443-00	s ELECT 100uF 20% 10V
C93	1-126-101-11	s ELECT 100uF 20% 16V
C94	1-161-494-00	s CERAMIC 0.022uF 25V
C95	1-161-494-00	s CERAMIC 0.022uF 25V

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Ref. No. or Q'ty	Part No.	SP Description
C96	1-162-889-11	s CERAMIC 680PF 5% 50V
C97	1-124-477-11	s ELECT 47uF 20% 25V
C99	1-126-176-11	s ELECT 220uF 20% 10V
C101	1-161-494-00	s CERAMIC 0.022uF 25V
C102	1-162-710-11	s CERAMIC 100PF 1% 50V
C103	1-162-724-11	s CERAMIC 390PF 1% 50V
C104	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C106	1-161-494-00	s CERAMIC 0.022uF 25V
C201	1-124-589-11	s ELECT 47uF 20% 16V
C202	1-161-494-00	s CERAMIC 0.022uF 25V
C203	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C205	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C209	1-126-094-11	s ELECT 4.7uF 20% 35V
C210	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C212	1-124-438-00	s ELECT 1uF 20% 50V
C213	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C215	1-124-589-11	s ELECT 47uF 20% 16V
C216	1-161-494-00	s CERAMIC 0.022uF 25V
C217	1-161-494-00	s CERAMIC 0.022uF 25V
C218	1-124-589-11	s ELECT 47uF 20% 16V
C219	1-124-589-11	s ELECT 47uF 20% 16V
C220	1-124-443-00	s ELECT 100uF 20% 10V
C221	1-124-443-00	s ELECT 100uF 20% 10V
C222	1-161-494-00	s CERAMIC 0.022uF 25V
C223	1-161-494-00	s CERAMIC 0.022uF 25V
C301	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C302	1-161-494-00	s CERAMIC 0.022uF 25V
C303	1-124-589-11	s ELECT 47uF 20% 16V
C304	1-162-726-11	s CERAMIC 470PF 1% 50V
C305	1-124-438-00	s ELECT 1uF 20% 50V
C350	1-124-589-11	s ELECT 47uF 20% 16V
C351	1-124-360-00	s ELECT 1000uF 20% 16V
C401	1-124-589-11	s ELECT 47uF 20% 16V
C402	1-124-589-11	s ELECT 47uF 20% 16V
C403	1-124-443-00	s ELECT 100uF 20% 10V
C404	1-124-589-11	s ELECT 47uF 20% 16V
C405	1-124-589-11	s ELECT 47uF 20% 16V
C406	1-161-494-00	s CERAMIC 0.022uF 25V
C407	1-161-494-00	s CERAMIC 0.022uF 25V
C408	1-126-157-11	s ELECT 10uF 20% 16V
C409	1-131-351-00	s TANTALUM 4.7uF 10% 35V
C411	1-124-589-11	s ELECT 47uF 20% 16V
C412	1-124-589-11	s ELECT 47uF 20% 16V
C413	1-126-103-11	s ELECT 470uF 20% 16V
C414	1-161-494-00	s CERAMIC 0.022uF 25V
C415	1-124-443-00	s ELECT 100uF 20% 10V
C416	1-124-589-11	s ELECT 47uF 20% 16V
C417	1-124-443-00	s ELECT 100uF 20% 10V
C418	1-124-589-11	s ELECT 47uF 20% 16V
C426	1-124-893-11	s ELECT 2200uF 20% 10V
C427	1-124-473-11	s ELECT 1000uF 20% 10V
C428	1-124-473-11	s ELECT 1000uF 20% 10V
C429	1-161-494-00	s CERAMIC 0.022uF 25V
C431	1-131-351-00	s TANTALUM 4.7uF 10% 35V
C501	1-126-101-11	s ELECT 100uF 20% 16V
C502	1-161-494-00	s CERAMIC 0.022uF 25V
C505	1-124-438-00	s ELECT 1uF 20% 50V
C506	1-124-257-00	s ELECT 2.2uF 20% 50V
C508	1-124-589-11	s ELECT 47uF 20% 16V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP Description
C509	1-124-443-00	s ELECT 100uF 20% 10V
C510	1-124-257-00	s ELECT 2.2uF 20% 50V
C513	1-124-438-00	s ELECT 1uF 20% 50V
C514	1-124-438-00	s ELECT 1uF 20% 50V
C516	1-124-589-11	s ELECT 47uF 20% 16V
C517	1-161-494-00	s CERAMIC 0.022uF 25V
C518	1-124-257-00	s ELECT 2.2uF 20% 50V
C525	1-124-438-00	s ELECT 1uF 20% 50V
C526	1-124-438-00	s ELECT 1uF 20% 50V
C552	1-124-443-00	s ELECT 100uF 20% 10V
C554	1-124-443-00	s ELECT 100uF 20% 10V
C555	1-124-443-00	s ELECT 100uF 20% 10V
C558	1-124-443-00	s ELECT 100uF 20% 10V
C562	1-126-157-11	s ELECT 10uF 20% 16V
C563	1-124-589-11	s ELECT 47uF 20% 16V
C564	1-126-157-11	s ELECT 10uF 20% 16V
C570	1-124-443-00	s ELECT 100uF 20% 10V
C571	1-124-589-11	s ELECT 47uF 20% 16V
C572	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C573	1-124-443-00	s ELECT 100uF 20% 10V
C575	1-126-103-11	s ELECT 470uF 20% 16V
C576	1-126-103-11	s ELECT 470uF 20% 16V
C577	1-124-473-11	s ELECT 1000uF 20% 10V
C581	1-161-494-00	s CERAMIC 0.022uF 25V
C590	1-126-157-11	s ELECT 10uF 20% 16V
C591	1-124-438-00	s ELECT 1uF 20% 50V
C593	1-109-543-00	s DIP MICA 240PF 10% 100V
C750	1-124-589-11	s ELECT 47uF 20% 16V
C751	1-161-494-00	s CERAMIC 0.022uF 25V
C754	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C801	1-161-494-00	s CERAMIC 0.022uF 25V
C804	1-161-494-00	s CERAMIC 0.022uF 25V
C805	1-162-733-11	s CERAMIC 910PF 1% 50V
C811	1-162-718-11	s CERAMIC 220PF 1% 50V
C813	1-124-443-00	s ELECT 100uF 20% 10V
C814	1-161-494-00	s CERAMIC 0.022uF 25V
C824	1-126-157-11	s ELECT 10uF 20% 16V
C825	1-124-589-11	s ELECT 47uF 20% 16V
C826	1-126-157-11	s ELECT 10uF 20% 16V
C827	1-126-157-11	s ELECT 10uF 20% 16V
C828	1-126-157-11	s ELECT 10uF 20% 16V
C829	1-162-720-11	s CERAMIC 270PF 1% 50V
C830	1-126-101-11	s ELECT 100uF 20% 16V
C831	1-124-638-11	s ELECT 22uF 20% 10V
C901	1-124-234-00	s ELECT 22uF 20% 16V
CN101	1-506-471-11	s CONNECTOR, 6P, MALE
CN111	1-506-471-11	o CONNECTOR, 6P, MALE
CV1	1-141-227-00	s CAP, TRIMMER 20PF
CV2	1-141-227-00	s CAP, TRIMMER 20PF
CV702	1-141-297-11	s CAP, TRIMMER 90PF
D1	8-719-911-19	s DIODE 1SS119
D2	8-719-911-19	s DIODE 1SS119
D3	8-719-911-19	s DIODE 1SS119
D4	8-719-911-19	s DIODE 1SS119
D6	8-719-911-19	s DIODE 1SS119
D101	8-719-911-19	s DIODE 1SS119
D102	8-719-911-19	s DIODE 1SS119
D103	8-719-911-19	s DIODE 1SS119

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Ref. No. or Q'ty	Part No.	SP Description
D251	8-719-911-19	s DIODE 1SS119
D252	8-719-911-19	s DIODE 1SS119
D301	8-719-911-19	s DIODE 1SS119
D302	8-719-911-19	s DIODE 1SS119
D303	8-719-911-19	s DIODE 1SS119
D304	8-719-911-19	s DIODE 1SS119
D305	8-719-911-19	s DIODE 1SS119
D306	8-719-911-19	s DIODE 1SS119
D350	8-719-109-72	s DIODE RD3.9ES-B2
D351	8-719-109-72	s DIODE RD3.9ES-B2
D401	8-719-911-19	s DIODE 1SS119
D404	8-719-911-19	s DIODE 1SS119
D560	8-719-101-97	s DIODE 1SS97-1
D561	8-719-101-97	s DIODE 1SS97-1
D813	8-719-109-44	s DIODE 1SS99-1
D814	8-719-101-97	s DIODE 1SS97-1
D815	8-719-101-97	s DIODE 1SS97-1
D901	8-719-911-19	s DIODE 1SS119
DL1	1-415-154-00	s DELAY LINE 35nS
DL2	1-415-154-00	s DELAY LINE 35nS
DL501	1-415-471-11	s DELAY LINE 300nS
FL1	1-235-478-11	s FILTER, HIGH-PASS
FL3	1-235-469-11	s FILTER, LOW-PASS
FL4	1-235-475-12	s FILTER, LOW-PASS
FL5	1-236-046-11	s FILTER, LOW-PASS
FL201	1-235-469-11	s FILTER, LOW-PASS
FL501	1-235-473-11	s FILTER, LOW-PASS
FL502	1-235-011-21	s FILTER, LOW-PASS
FL550	1-231-357-21	s FILTER, LOW-PASS
FL801	1-235-010-21	s FILTER, HIGH-PASS
IC1	8-751-340-10	s IC CX134A
IC3	8-741-114-00	s IC BX1140
IC4	8-751-350-10	s IC CX135
IC5	8-759-208-10	s IC TC4053BPHB
IC6	8-743-890-00	s IC BX-389
IC7	8-749-901-13	s IC BX-1249L
IC8	8-749-901-13	s IC BX-1249L
IC9	8-759-981-91	s IC RC4558DQ
IC10	8-752-006-12	s IC CX20061
IC11	8-752-006-12	s IC CX20061
IC12	8-749-900-93	s IC BX-1471
IC13	8-759-982-21	s IC RC78L05A
IC201	8-759-207-38	s IC TA7374P
IC202	8-752-321-89	s IC CXL5003P
IC203	8-759-982-25	s IC RC78L09A
IC204	8-743-890-00	s IC BX-389
IC251	8-741-124-80	s IC BX1248
IC301	8-749-900-68	s IC BX-1447L
IC302	1-808-692-11	s IC FD-01
IC303	8-759-345-38	s IC HD14538BP
IC401	8-743-880-00	s IC BX-388
IC402	8-743-880-00	s IC BX-388
IC403	8-759-208-10	s IC TC4053BPHB
IC501	8-743-890-00	s IC BX-389
IC502	8-752-006-12	s IC CX20061
IC504	8-752-006-12	s IC CX20061
IC550	8-752-006-12	s IC CX20061
IC560	8-759-200-60	s IC TA7060AP

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP Description
IC570	8-743-880-00	s IC BX-388
IC801	8-743-890-00	s IC BX-389
IC806	8-759-200-60	s IC TA7060AP
L1	1-410-482-31	s INDUCTOR 100uH
L2	1-410-087-31	s INDUCTOR 10mH
L3	1-410-471-11	s INDUCTOR 12uH
L4	1-410-471-11	s INDUCTOR 12uH
L5	1-410-087-31	s INDUCTOR 10mH
L7	1-410-473-11	s INDUCTOR 18uH
L9	1-410-092-31	s INDUCTOR 27mH
L14	1-410-119-11	s INDUCTOR 1mH
L15	1-410-482-31	s INDUCTOR 100uH
L18	1-410-470-11	s INDUCTOR 10uH
L19	1-410-468-11	s INDUCTOR 6.8uH
L22	1-410-482-31	s INDUCTOR 100uH
L24	1-410-482-31	s INDUCTOR 100uH
L26	1-410-087-31	s INDUCTOR 10mH
L28	1-410-482-31	s INDUCTOR 100uH
L201	1-410-482-31	s INDUCTOR 100uH
L202	1-410-482-31	s INDUCTOR 100uH
L252	1-410-482-31	s INDUCTOR 100uH
L301	1-410-482-31	s INDUCTOR 100uH
L401	1-410-482-31	s INDUCTOR 100uH
L402	1-410-482-31	s INDUCTOR 100uH
L403	1-410-482-31	s INDUCTOR 100uH
L504	1-410-119-11	s INDUCTOR 1mH
L508	1-410-482-31	s INDUCTOR 100uH
L509	1-410-482-31	s INDUCTOR 100uH
L550	1-410-476-11	s INDUCTOR 33uH
L562	1-410-087-31	s INDUCTOR 10mH
L570	1-410-482-31	s INDUCTOR 100uH
L715	1-410-482-31	s INDUCTOR 100uH
L801	1-410-476-11	s INDUCTOR 33uH
L802	1-410-478-11	s INDUCTOR 47uH
L803	1-410-468-11	s INDUCTOR 6.8uH
L804	1-410-470-11	s INDUCTOR 10uH
L805	1-410-473-11	s INDUCTOR 18uH
L811	1-410-087-31	s INDUCTOR 10mH
LV1	1-407-572-00	s COIL, VAR 33uH
LV301	1-407-565-00	s COIL, VAR 2.2uH
LV501	1-407-268-00	s INDUCTOR, VAR 1.5mH
Q1	8-729-603-50	s TRANSISTOR 2SC403SP
Q2	8-729-603-50	s TRANSISTOR 2SC403SP
Q3	8-729-603-50	s TRANSISTOR 2SC403SP
Q4	8-729-119-76	s TRANSISTOR 2SA1175
Q5	8-729-900-89	s TRANSISTOR DTC144ES
Q6	8-729-201-05	s TRANSISTOR 2SC2878-B
Q7	8-729-603-50	s TRANSISTOR 2SC403SP
Q8	8-729-603-50	s TRANSISTOR 2SC403SP
Q9	8-729-603-50	s TRANSISTOR 2SC403SP
Q10	8-729-900-89	s TRANSISTOR DTC144ES
Q11	8-729-113-34	s TRANSISTOR 2SB733-5
Q12	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q13	8-729-603-50	s TRANSISTOR 2SC403SP
Q14	8-729-603-50	s TRANSISTOR 2SC403SP
Q15	8-729-201-05	s TRANSISTOR 2SC2878-B
Q16	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q17	8-729-603-50	s TRANSISTOR 2SC403SP

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Ref. No. or Q'ty	Part No.	SP Description
Q18	8-729-119-76	s TRANSISTOR 2SA1175
Q19	8-729-603-50	s TRANSISTOR 2SC403SP
Q20	8-729-603-50	s TRANSISTOR 2SC403SP
Q21	8-729-603-50	s TRANSISTOR 2SC403SP
Q22	8-729-603-50	s TRANSISTOR 2SC403SP
Q23	8-729-603-50	s TRANSISTOR 2SC403SP
Q24	8-729-603-50	s TRANSISTOR 2SC403SP
Q25	8-729-105-72	s TRANSISTOR 2SK523-L1
Q26	8-729-201-05	s TRANSISTOR 2SC2878-B
Q27	8-729-201-05	s TRANSISTOR 2SC2878-B
Q28	8-729-603-50	s TRANSISTOR 2SC403SP
Q29	8-729-119-76	s TRANSISTOR 2SA1175
Q30	8-729-603-50	s TRANSISTOR 2SC403SP
Q31	8-729-603-50	s TRANSISTOR 2SC403SP
Q32	8-729-603-50	s TRANSISTOR 2SC403SP
Q33	8-729-603-50	s TRANSISTOR 2SC403SP
Q34	8-729-603-50	s TRANSISTOR 2SC403SP
Q35	8-729-603-50	s TRANSISTOR 2SC403SP
Q36	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q37	8-729-201-05	s TRANSISTOR 2SC2878-B
Q38	8-729-201-05	s TRANSISTOR 2SC2878-B
Q40	8-729-201-05	s TRANSISTOR 2SC2878-B
Q41	8-729-900-89	s TRANSISTOR DTC144ES
Q42	8-729-900-89	s TRANSISTOR DTC144ES
Q43	8-729-603-50	s TRANSISTOR 2SC403SP
Q44	8-729-603-50	s TRANSISTOR 2SC403SP
Q45	8-729-900-89	s TRANSISTOR DTC144ES
Q101	8-729-603-50	s TRANSISTOR 2SC403SP
Q102	8-729-900-89	s TRANSISTOR DTC144ES
Q103	8-729-201-05	s TRANSISTOR 2SC2878-B
Q201	8-729-603-50	s TRANSISTOR 2SC403SP
Q202	8-729-119-76	s TRANSISTOR 2SA1175
Q301	8-729-900-89	s TRANSISTOR DTC144ES
Q302	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q303	8-729-900-89	s TRANSISTOR DTC144ES
Q305	8-729-900-89	s TRANSISTOR DTC144ES
Q306	8-729-900-89	s TRANSISTOR DTC144ES
Q350	8-729-119-76	s TRANSISTOR 2SA1175
Q351	8-729-113-34	s TRANSISTOR 2SB733-5
Q401	8-729-900-89	s TRANSISTOR DTC144ES
Q402	8-729-603-50	s TRANSISTOR 2SC403SP
Q403	8-729-201-05	s TRANSISTOR 2SC2878-B
Q404	8-729-201-05	s TRANSISTOR 2SC2878-B
Q405	8-729-603-50	s TRANSISTOR 2SC403SP
Q406	8-729-275-42	s TRANSISTOR 2SC2754
Q407	8-729-275-42	s TRANSISTOR 2SC2754
Q408	8-729-900-89	s TRANSISTOR DTC144ES
Q409	8-729-119-76	s TRANSISTOR 2SA1175
Q410	8-729-119-76	s TRANSISTOR 2SA1175
Q411	8-729-119-76	s TRANSISTOR 2SA1175
Q412	8-729-119-76	s TRANSISTOR 2SA1175
Q413	8-729-900-89	s TRANSISTOR DTC144ES
Q414	8-729-900-89	s TRANSISTOR DTC144ES
Q415	8-729-119-78	s TRANSISTOR 2SC2785
Q416	8-729-900-89	s TRANSISTOR DTC144ES
Q501	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q502	8-729-201-05	s TRANSISTOR 2SC2878-B
Q503	8-729-603-50	s TRANSISTOR 2SC403SP
Q504	8-729-603-50	s TRANSISTOR 2SC403SP

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP Description
Q520	8-729-603-50	s TRANSISTOR 2SC403SP
Q521	8-729-603-50	s TRANSISTOR 2SC403SP
Q522	8-729-603-50	s TRANSISTOR 2SC403SP
Q523	8-729-119-76	s TRANSISTOR 2SA1175
Q524	8-729-603-50	s TRANSISTOR 2SC403SP
Q525	8-729-603-50	s TRANSISTOR 2SC403SP
Q526	8-729-603-50	s TRANSISTOR 2SC403SP
Q527	8-729-201-05	s TRANSISTOR 2SC2878-B
Q529	8-729-603-50	s TRANSISTOR 2SC403SP
Q550	8-729-603-50	s TRANSISTOR 2SC403SP
Q551	8-729-603-50	s TRANSISTOR 2SC403SP
Q560	8-729-201-05	s TRANSISTOR 2SC2878-B
Q561	8-729-603-50	s TRANSISTOR 2SC403SP
Q562	8-729-201-05	s TRANSISTOR 2SC2878-B
Q563	8-729-603-50	s TRANSISTOR 2SC403SP
Q570	8-729-900-89	s TRANSISTOR DTC144ES
Q571	8-729-201-05	s TRANSISTOR 2SC2878-B
Q572	8-729-900-89	s TRANSISTOR DTC144ES
Q590	8-729-603-50	s TRANSISTOR 2SC403SP
Q722	8-729-603-50	s TRANSISTOR 2SC403SP
Q723	8-729-603-50	s TRANSISTOR 2SC403SP
Q724	8-729-603-50	s TRANSISTOR 2SC403SP
Q731	8-729-603-50	s TRANSISTOR 2SC403SP
Q801	8-729-603-50	s TRANSISTOR 2SC403SP
Q802	8-729-603-50	s TRANSISTOR 2SC403SP
Q803	8-729-603-50	s TRANSISTOR 2SC403SP
Q806	8-729-201-05	s TRANSISTOR 2SC2878-B
Q810	8-729-603-50	s TRANSISTOR 2SC403SP
Q811	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q812	8-729-603-50	s TRANSISTOR 2SC403SP
Q901	8-729-900-89	s TRANSISTOR DTC144ES
R83	1-215-401-11	s METAL 150 1% 1/6W
R97	1-247-887-00	s CARBON 220K 5% 1/4W
R207	1-247-903-00	s CARBON 1M 5% 1/4W
R575	1-247-848-11	s CARBON 5.1K 5% 1/4W
RV1	1-228-990-00	s RES, ADJ, METAL 1K
RV2	1-228-990-00	s RES, ADJ, METAL 1K
RV3	1-228-990-00	s RES, ADJ, METAL 1K
RV4	1-228-991-00	s RES, ADJ, METAL 2.2K
RV5	1-228-991-00	s RES, ADJ, METAL 2.2K
RV8	1-228-995-00	s RES, ADJ, METAL 22K
RV9	1-228-991-00	s RES, ADJ, METAL 2.2K
RV10	1-228-991-00	s RES, ADJ, METAL 2.2K
RV11	1-226-702-00	s RES, ADJ, METAL 2.2K
RV12	1-228-990-00	s RES, ADJ, METAL 1K
RV13	1-228-995-00	s RES, ADJ, METAL 22K
RV16	1-226-702-00	s RES, ADJ, METAL 2.2K
RV17	1-228-991-00	s RES, ADJ, METAL 2.2K
RV201	1-228-989-00	s RES, ADJ, METAL 470
RV251	1-228-993-00	s RES, ADJ, METAL 4.7K
RV301	1-228-996-00	s RES, ADJ, METAL 47K
RV302	1-228-459-00	s RES, ADJ, METAL 10K
RV401	1-226-771-11	s RES, ADJ, METAL 1K
RV402	1-226-771-11	s RES, ADJ, METAL 1K
RV403	1-228-993-00	s RES, ADJ, METAL 4.7K
RV502	1-228-993-00	s RES, ADJ, METAL 4.7K
RV503	1-228-991-00	s RES, ADJ, METAL 2.2K
RV504	1-228-990-00	s RES, ADJ, METAL 1K

(DM-72 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
RV505	1-228-990-00	s RES, ADJ, METAL 1K
RV506	1-228-990-00	s RES, ADJ, METAL 1K
RV551	1-228-991-00	s RES, ADJ, METAL 2.2K
RV810	1-228-993-00	s RES, ADJ, METAL 4.7K
TH1	1-800-200-00	s THERMISTOR S-3K
TH3	1-800-202-XX	s THERMISTOR S-10K

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

DM-73 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6727-088-A	o MOUNTED CIRCUIT BOARD, DM-73
C505	1-124-589-11	s ELECT 47uF 20% 16V
C506	1-126-103-11	s ELECT 470uF 20% 16V
C525	1-124-589-11	s ELECT 47uF 20% 16V
C526	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C527	1-124-438-00	s ELECT 1uF 20% 50V
C529	1-126-157-11	s ELECT 10uF 20% 16V
C531	1-124-438-00	s ELECT 1uF 20% 50V
C532	1-124-438-00	s ELECT 1uF 20% 50V
C533	1-126-101-11	s ELECT 100uF 20% 16V
C534	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C535	1-126-157-11	s ELECT 10uF 20% 16V
C537	1-124-638-11	s ELECT 22uF 20% 10V
C538	1-126-157-11	s ELECT 10uF 20% 16V
C541	1-131-344-00	s TANTALUM 0.33uF 10% 35V
C543	1-126-101-11	s ELECT 100uF 20% 16V
C544	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C547	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C548	1-124-589-11	s ELECT 47uF 20% 16V
C549	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C550	1-163-021-00	s CERAMIC, CHIP 0.01uF 5% 50V
C552	1-163-021-00	s CERAMIC, CHIP 0.01uF 5% 50V
C554	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C558	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C559	1-161-494-00	s CERAMIC 0.022uF 25V
C560	1-163-035-00	s CERAMIC, CHIP 0.047uF 50V
C561	1-131-379-00	s TANTALUM 22uF 10% 10V
C562	1-131-350-00	s TANTALUM 3.3uF 10% 35V
C563	1-131-350-00	s TANTALUM 3.3uF 10% 35V
C564	1-131-379-00	s TANTALUM 22uF 10% 10V
C565	1-126-157-11	s ELECT 10uF 20% 16V
C567	1-126-101-11	s ELECT 100uF 20% 16V
C568	1-162-724-11	s CERAMIC 390PF 1% 50V
C571	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C572	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C573	1-124-438-00	s ELECT 1uF 20% 50V
C575	1-124-589-11	s ELECT 47uF 20% 16V
C576	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C578	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C579	1-131-344-00	s TANTALUM 0.33uF 10% 35V
C580	1-124-589-11	s ELECT 47uF 20% 16V
C582	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C585	1-131-343-00	s TANTALUM 0.22uF 10% 35V
C587	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C588	1-124-589-11	s ELECT 47uF 20% 16V
C589	1-131-349-00	s TANTALUM 2.2uF 10% 35V
C591	1-124-589-11	s ELECT 47uF 20% 16V
C592	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C595	1-124-589-11	s ELECT 47uF 20% 16V
C596	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C598	1-124-257-00	s ELECT 2.2uF 20% 50V
C599	1-162-726-11	s CERAMIC 470PF 1% 50V
C600	1-162-889-11	s CERAMIC 680PF 5% 50V
C601	1-124-438-00	s ELECT 1uF 20% 50V
C610	1-124-589-11	s ELECT 47uF 20% 16V
C611	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C613	1-131-351-00	s TANTALUM 4.7uF 10% 35V
C616	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V

(DM-73 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C617	1-126-157-11	s ELECT 10uF 20% 16V
C618	1-162-726-11	s CERAMIC 470PF 1% 50V
C620	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C629	1-163-021-00	s CERAMIC, CHIP 0.01uF 5% 50V
C630	1-163-021-00	s CERAMIC, CHIP 0.01uF 5% 50V
C631	1-124-589-11	s ELECT 47uF 20% 16V
C632	1-124-589-11	s ELECT 47uF 20% 16V
C634	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C635	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C636	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C637	1-124-589-11	s ELECT 47uF 20% 16V
C638	1-126-157-11	s ELECT 10uF 20% 16V
C639	1-124-120-11	s ELECT 220uF 20% 25V
C640	1-124-589-11	s ELECT 47uF 20% 16V
C641	1-163-021-00	s CERAMIC, CHIP 0.01uF 5% 50V
C642	1-126-157-11	s ELECT 10uF 20% 16V
C643	1-126-157-11	s ELECT 10uF 20% 16V
C645	1-126-157-11	s ELECT 10uF 20% 16V
C646	1-126-157-11	s ELECT 10uF 20% 16V
C648	1-163-809-11	s CERAMIC, CHIP 0.047uF 10% 25V
C649	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C650	1-124-589-11	s ELECT 47uF 20% 16V
C705	1-102-108-00	s CERAMIC 150PF 10% 50V
C706	1-162-888-11	s CERAMIC 560PF 5% 50V
C708	1-163-035-00	s CERAMIC, CHIP 0.047uF 50V
C712	1-131-353-00	s TANTALUM 10uF 10% 35V
C713	1-126-101-11	s ELECT 100uF 20% 16V
C721	1-124-589-11	s ELECT 47uF 20% 16V
C726	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C727	1-124-589-11	s ELECT 47uF 20% 16V
C728	1-126-157-11	s ELECT 10uF 20% 16V
C729	1-163-021-00	s CERAMIC, CHIP 0.01uF 5% 50V
C734	1-163-035-00	s CERAMIC, CHIP 0.047uF 50V
C735	1-163-035-00	s CERAMIC, CHIP 0.047uF 50V
C736	1-163-035-00	s CERAMIC, CHIP 0.047uF 50V
C737	1-163-141-00	s CERAMIC, CHIP 0.001uF 5% 50V
C738	1-163-141-00	s CERAMIC, CHIP 0.001uF 5% 50V
C758	1-124-438-00	s ELECT 1uF 20% 50V
C759	1-124-438-00	s ELECT 1uF 20% 50V
C760	1-124-438-00	s ELECT 1uF 20% 50V
C761	1-126-157-11	s ELECT 10uF 20% 16V
C762	1-126-157-11	s ELECT 10uF 20% 16V
C764	1-124-438-00	s ELECT 1uF 20% 50V
C765	1-126-157-11	s ELECT 10uF 20% 16V
C766	1-163-012-00	s CERAMIC 0.0018uF 10% 50V
C767	1-163-035-00	s CERAMIC, CHIP 0.047uF 50V
C768	1-163-021-00	s CERAMIC, CHIP 0.01uF 5% 50V
C769	1-126-157-11	s ELECT 10uF 20% 16V
C774	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C775	1-124-589-11	s ELECT 47uF 20% 16V
C776	1-126-157-11	s ELECT 10uF 20% 16V
CV701	1-141-227-00	s CAP, TRIMMER 20PF
D501	8-719-100-05	s DIODE 1S2837
D502	8-719-100-05	s DIODE 1S2837
D504	8-719-100-05	s DIODE 1S2837
D505	8-719-911-19	s DIODE 1SS119
D506	8-719-100-05	s DIODE 1S2837

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP Description
D507	8-719-100-05	s DIODE 1S2837
D508	8-719-109-60	s DIODE RD2.7ES-B2
D509	8-719-109-60	s DIODE RD2.7ES-B2
D510	8-719-100-05	s DIODE 1S2837
D511	8-719-815-59	s DIODE 1S1555-S
D512	8-719-100-05	s DIODE 1S2837
D513	8-719-100-05	s DIODE 1S2837
D514	8-719-109-44	s DIODE 1SS99-1
D515	8-719-109-44	s DIODE 1SS99-1
D516	8-719-109-44	s DIODE 1SS99-1
D517	8-719-109-44	s DIODE 1SS99-1
D518	8-719-100-05	s DIODE 1S2837
D519	8-719-100-05	s DIODE 1S2837
D521	8-719-100-05	s DIODE 1S2837
D524	8-719-100-05	s DIODE 1S2837
D651	8-719-100-05	s DIODE 1S2837
D652	8-719-100-05	s DIODE 1S2837
D701	8-719-100-05	s DIODE 1S2837
D703	8-719-109-44	s DIODE 1SS99-1
D704	8-719-100-05	s DIODE 1S2837
D706	8-719-100-05	s DIODE 1S2837
FL504	1-236-029-12	s FILTER, BANDPASS 4.2MHZ
FL701	1-235-470-11	s FILTER, LOW-PASS
IC506	8-749-901-14	s IC BX-1250L
IC507	8-741-125-21	s IC BX-1252A
IC508	8-741-126-40	s IC BX-1264
IC509	8-752-006-12	s IC CX20061
IC511	8-759-908-59	s IC CX859
IC512	8-750-000-46	s IC CX872
IC518	8-759-200-60	s IC TA7060AP
IC651	8-749-900-87	s IC BX1470L
IC652	8-759-922-61	s IC SN16913P-A
IC701	8-752-006-12	s IC CX20061
IC702	8-752-006-12	s IC CX20061
IC703	8-759-922-61	s IC SN16913P-A
IC704	8-752-006-12	s IC CX20061
IC705	8-752-006-12	s IC CX20061
IC706	8-759-200-60	s IC TA7060AP
L506	1-410-482-31	s INDUCTOR 100uH
L507	1-410-482-31	s INDUCTOR 100uH
L508	1-410-482-31	s INDUCTOR 100uH
L509	1-410-482-31	s INDUCTOR 100uH
L510	1-410-476-11	s INDUCTOR 33uH
L511	1-410-069-11	s INDUCTOR 6.8mH
L513	1-410-069-11	s INDUCTOR 6.8mH
L515	1-410-489-11	s INDUCTOR 390uH
L516	1-410-482-31	s INDUCTOR 100uH
L517	1-410-482-31	s INDUCTOR 100uH
L518	1-410-482-31	s INDUCTOR 100uH
L519	1-410-482-31	s INDUCTOR 100uH
L520	1-410-482-31	s INDUCTOR 100uH
L701	1-410-478-11	s INDUCTOR 47uH
L702	1-410-482-31	s INDUCTOR 100uH
L703	1-408-247-00	s INDUCTOR 33mH
L705	1-410-482-31	s INDUCTOR 100uH
L706	1-410-473-11	s INDUCTOR 18uH
L707	1-410-482-31	s INDUCTOR 100uH
L713	1-410-471-11	s INDUCTOR 12uH

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Ref. No. or Q'ty	Part No.	SP Description
L716	1-410-476-11	s INDUCTOR 33uH
LV701	1-425-982-00	s TRANSFORMER, BANDPASS
LV702	1-411-106-00	s COIL 5.12MHZ
Q508	8-729-271-22	s TRANSISTOR 2SC2712-G
Q509	8-729-901-01	s TRANSISTOR DTC144EK
Q510	8-729-901-01	s TRANSISTOR DTC144EK
Q511	8-729-901-01	s TRANSISTOR DTC144EK
Q520	8-729-216-22	s TRANSISTOR 2SA1162
Q521	8-729-271-22	s TRANSISTOR 2SC2712-G
Q522	8-729-271-22	s TRANSISTOR 2SC2712-G
Q523	8-729-901-01	s TRANSISTOR DTC144EK
Q524	8-729-202-38	s TRANSISTOR 2SC3326N
Q525	8-729-202-38	s TRANSISTOR 2SC3326N
Q527	8-729-216-22	s TRANSISTOR 2SA1162
Q528	8-729-202-38	s TRANSISTOR 2SC3326N
Q529	8-729-202-38	s TRANSISTOR 2SC3326N
Q530	8-729-202-38	s TRANSISTOR 2SC3326N
Q531	8-729-202-38	s TRANSISTOR 2SC3326N
Q532	8-729-901-01	s TRANSISTOR DTC144EK
Q533	8-729-202-38	s TRANSISTOR 2SC3326N
Q534	8-729-271-22	s TRANSISTOR 2SC2712-G
Q537	8-729-271-22	s TRANSISTOR 2SC2712-G
Q539	8-729-202-38	s TRANSISTOR 2SC3326N
Q540	8-729-901-01	s TRANSISTOR DTC144EK
Q541	8-729-271-22	s TRANSISTOR 2SC2712-G
Q542	8-729-271-22	s TRANSISTOR 2SC2712-G
Q543	8-729-271-22	s TRANSISTOR 2SC2712-G
Q544	8-729-271-22	s TRANSISTOR 2SC2712-G
Q545	8-729-271-22	s TRANSISTOR 2SC2712-G
Q550	8-729-202-38	s TRANSISTOR 2SC3326N
Q551	8-729-119-78	s TRANSISTOR 2SC2785
Q601	8-729-271-22	s TRANSISTOR 2SC2712-G
Q602	8-729-201-05	s TRANSISTOR 2SC2878-B
Q603	8-729-271-22	s TRANSISTOR 2SC2712-G
Q604	8-729-901-01	s TRANSISTOR DTC144EK
Q605	8-729-271-22	s TRANSISTOR 2SC2712-G
Q701	8-729-202-38	s TRANSISTOR 2SC3326N
Q702	8-729-901-01	s TRANSISTOR DTC144EK
Q703	8-729-202-38	s TRANSISTOR 2SC3326N
Q704	8-729-271-22	s TRANSISTOR 2SC2712-G
Q705	8-729-202-38	s TRANSISTOR 2SC3326N
Q706	8-729-271-22	s TRANSISTOR 2SC2712-G
Q707	8-729-901-01	s TRANSISTOR DTC144EK
Q708	8-729-216-22	s TRANSISTOR 2SA1162
Q709	8-729-216-22	s TRANSISTOR 2SA1162
Q710	8-729-202-38	s TRANSISTOR 2SC3326N
Q712	8-729-202-38	s TRANSISTOR 2SC3326N
Q713	8-729-202-38	s TRANSISTOR 2SC3326N
Q714	8-729-901-01	s TRANSISTOR DTC144EK
Q715	8-729-901-01	s TRANSISTOR DTC144EK
Q716	8-729-901-01	s TRANSISTOR DTC144EK
Q717	8-729-202-38	s TRANSISTOR 2SC3326N
Q718	8-729-271-22	s TRANSISTOR 2SC2712-G
Q719	8-729-202-38	s TRANSISTOR 2SC3326N
Q720	8-729-202-38	s TRANSISTOR 2SC3326N
Q721	8-729-271-22	s TRANSISTOR 2SC2712-G
Q725	8-729-216-22	s TRANSISTOR 2SA1162
Q726	8-729-216-22	s TRANSISTOR 2SA1162

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-73 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q727	8-729-202-38	s TRANSISTOR 2SC3326N
Q728	8-729-901-01	s TRANSISTOR DTC144EK
Q732	8-729-216-22	s TRANSISTOR 2SA1162
Q733	8-729-271-22	s TRANSISTOR 2SC2712-G
Q735	8-729-271-22	s TRANSISTOR 2SC2712-G
Q736	8-729-901-01	s TRANSISTOR DTC144EK
Q737	8-729-600-24	s TRANSISTOR 2SC403SP-51
R536	1-216-748-11	s METAL, CHIP 39K 1% 1/10W
R537	1-216-696-11	s METAL, CHIP 75K 0.5% 1/10W
R539	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R544	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R546	1-216-041-00	s METAL, CHIP 470 5% 1/10W
R548	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R549	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R550	1-216-025-00	s METAL, CHIP 100 5% 1/10W
R551	1-216-077-00	s METAL, CHIP 15K 5% 1/10W
R552	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R553	1-216-059-00	s METAL, CHIP 2.7K 5% 1/10W
R554	1-216-085-00	s METAL, CHIP 33K 5% 1/10W
R555	1-216-047-00	s METAL, CHIP 820 5% 1/10W
R558	1-216-063-00	s METAL, CHIP 3.9K 5% 1/10W
R559	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R560	1-216-067-00	s METAL, CHIP 5.6K 5% 1/10W
R561	1-216-045-00	s METAL, CHIP 680 5% 1/10W
R563	1-216-658-11	s METAL, CHIP 2K 0.5% 1/10W
R564	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R565	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R566	1-216-053-00	s METAL, CHIP 1.5K 5% 1/10W
R567	1-216-033-00	s METAL, CHIP 220 5% 1/10W
R568	1-216-063-00	s METAL, CHIP 3.9K 5% 1/10W
R570	1-216-077-00	s METAL, CHIP 15K 5% 1/10W
R572	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R573	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R574	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R575	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R576	1-216-065-00	s METAL, CHIP 4.7K 5% 1/10W
R577	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R578	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R579	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R580	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R581	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R582	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R583	1-216-025-00	s METAL, CHIP 100 5% 1/10W
R584	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R585	1-216-053-00	s METAL, CHIP 1.5K 5% 1/10W
R586	1-216-041-00	s METAL, CHIP 470 5% 1/10W
R587	1-216-033-00	s METAL, CHIP 220 5% 1/10W
R588	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R589	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R590	1-216-047-00	s METAL, CHIP 820 5% 1/10W
R591	1-216-061-00	s METAL, CHIP 3.3K 5% 1/10W
R592	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R593	1-216-107-00	s METAL, CHIP 270K 5% 1/10W
R594	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R595	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R596	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R597	1-216-069-00	s METAL, CHIP 6.8K 5% 1/10W
R598	1-216-061-00	s METAL, CHIP 3.3K 5% 1/10W

(DM-73 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R599	1-216-085-00	s METAL, CHIP 33K 5% 1/10W
R600	1-216-085-00	s METAL, CHIP 33K 5% 1/10W
R603	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R605	1-216-059-00	s METAL, CHIP 2.7K 5% 1/10W
R606	1-216-061-00	s METAL, CHIP 3.3K 5% 1/10W
R607	1-216-085-00	s METAL, CHIP 33K 5% 1/10W
R608	1-216-033-00	s METAL, CHIP 220 5% 1/10W
R611	1-216-059-00	s METAL, CHIP 2.7K 5% 1/10W
R612	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R614	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R615	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R617	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R619	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R620	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R621	1-216-061-00	s METAL, CHIP 3.3K 5% 1/10W
R622	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R623	1-216-101-00	s METAL, CHIP 150K 5% 1/10W
R624	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R625	1-216-067-00	s METAL, CHIP 5.6K 5% 1/10W
R627	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R628	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R639	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R640	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R641	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R642	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R643	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R644	1-216-053-00	s METAL, CHIP 1.5K 5% 1/10W
R645	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R646	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R647	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R648	1-216-075-00	s METAL, CHIP 12K 5% 1/10W
R649	1-216-053-00	s METAL, CHIP 1.5K 5% 1/10W
R650	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R651	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R652	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R653	1-216-069-00	s METAL, CHIP 6.8K 5% 1/10W
R654	1-216-061-00	s METAL, CHIP 3.3K 5% 1/10W
R655	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R656	1-216-063-00	s METAL, CHIP 3.9K 5% 1/10W
R657	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R658	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R659	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R660	1-216-077-00	s METAL, CHIP 15K 5% 1/10W
R661	1-216-083-00	s METAL, CHIP 27K 5% 1/10W
R665	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R666	1-216-069-00	s METAL, CHIP 6.8K 5% 1/10W
R667	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R668	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R669	1-216-065-00	s METAL, CHIP 4.7K 5% 1/10W
R670	1-216-061-00	s METAL, CHIP 3.3K 5% 1/10W
R671	1-216-047-00	s METAL, CHIP 820 5% 1/10W
R672	1-216-061-00	s METAL, CHIP 3.3K 5% 1/10W
R673	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R674	1-216-077-00	s METAL, CHIP 15K 5% 1/10W
R675	1-216-077-00	s METAL, CHIP 15K 5% 1/10W
R676	1-216-017-00	s METAL, CHIP 47 5% 1/10W
R677	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R679	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R683	1-216-081-00	s METAL, CHIP 22K 5% 1/10W

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-73 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R685	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R686	1-216-047-00	s METAL, CHIP 820 5% 1/10W
R687	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R688	1-216-067-00	s METAL, CHIP 5.6K 5% 1/10W
R691	1-216-013-00	s METAL, CHIP 33 5% 1/10W
R692	1-216-025-00	s METAL, CHIP 100 5% 1/10W
R693	1-216-059-00	s METAL, CHIP 2.7K 5% 1/10W
R694	1-216-051-00	s METAL, CHIP 1.2K 5% 1/10W
R695	1-216-041-00	s METAL, CHIP 470 5% 1/10W
R697	1-216-045-00	s METAL, CHIP 680 5% 1/10W
R698	1-216-061-00	s METAL, CHIP 3.3K 5% 1/10W
R701	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R702	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R703	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R704	1-216-668-11	s METAL, CHIP 5.1K 0.5% 1/10W
R705	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R706	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R707	1-216-041-00	s METAL, CHIP 470 5% 1/10W
R708	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R709	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R710	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R712	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R713	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R715	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R716	1-216-025-00	s METAL, CHIP 100 5% 1/10W
R718	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R719	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R720	1-216-035-00	s METAL, CHIP 270 5% 1/10W
R721	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R723	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R724	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R725	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R726	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R727	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R728	1-216-065-00	s METAL, CHIP 4.7K 5% 1/10W
R729	1-216-067-00	s METAL, CHIP 5.6K 5% 1/10W
R730	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R731	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R732	1-216-025-00	s METAL, CHIP 100 5% 1/10W
R733	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R734	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R737	1-216-083-00	s METAL, CHIP 27K 5% 1/10W
R738	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R739	1-216-085-00	s METAL, CHIP 33K 5% 1/10W
R740	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R741	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R742	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R743	1-216-650-11	s METAL, CHIP 910 0.5% 1/10W
R745	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R746	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R747	1-216-063-00	s METAL, CHIP 3.9K 5% 1/10W
R748	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R749	1-216-037-00	s METAL, CHIP 330 5% 1/10W
R750	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R751	1-216-628-11	s METAL, CHIP 110 0.5% 1/10W
R752	1-216-033-00	s METAL, CHIP 220 5% 1/10W
R753	1-216-033-00	s METAL, CHIP 220 5% 1/10W
R754	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R755	1-216-013-00	s METAL, CHIP 33 5% 1/10W

(DM-73 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R756	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R757	1-216-685-11	s METAL, CHIP 27K 0.5% 1/10W
R772	1-216-748-11	s METAL, CHIP 39K 1% 1/10W
R773	1-216-085-00	s METAL, CHIP 33K 5% 1/10W
R774	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
R775	1-216-097-00	s METAL, CHIP 100K 5% 1/10W
R776	1-216-032-00	s METAL, CHIP 200 5% 1/10W
R777	1-216-061-00	s METAL, CHIP 3.3K 5% 1/10W
R778	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R779	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R780	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R781	1-216-025-00	s METAL, CHIP 100 5% 1/10W
R782	1-216-089-00	s METAL, CHIP 47K 5% 1/10W
R783	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R784	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R785	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R787	1-216-045-00	s METAL, CHIP 680 5% 1/10W
R788	1-216-053-00	s METAL, CHIP 1.5K 5% 1/10W
R789	1-216-025-00	s METAL, CHIP 100 5% 1/10W
R790	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R791	1-216-033-00	s METAL, CHIP 220 5% 1/10W
R792	1-216-049-00	s METAL, CHIP 1K 5% 1/10W
R793	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R794	1-216-073-00	s METAL, CHIP 10K 5% 1/10W
R795	1-216-057-00	s METAL, CHIP 2.2K 5% 1/10W
R889	1-216-071-00	s METAL, CHIP 8.2K 5% 1/10W
R919	1-216-081-00	s METAL, CHIP 22K 5% 1/10W
RV504	1-228-989-00	s RES, ADJ, METAL 470
RV505	1-228-993-00	s RES, ADJ, METAL 4.7K
RV506	1-228-995-00	s RES, ADJ, METAL 22K
RV507	1-228-994-00	s RES, ADJ, METAL 10K
RV508	1-228-994-00	s RES, ADJ, METAL 10K
RV509	1-228-995-00	s RES, ADJ, METAL 22K
RV510	1-228-994-00	s RES, ADJ, METAL 10K
RV512	1-228-994-00	s RES, ADJ, METAL 10K
RV517	1-228-989-00	s RES, ADJ, METAL 470
RV518	1-228-993-00	s RES, ADJ, METAL 4.7K
RV519	1-228-995-00	s RES, ADJ, METAL 22K
RV521	1-228-991-00	s RES, ADJ, METAL 2.2K
RV522	1-228-993-00	s RES, ADJ, METAL 4.7K
RV523	1-228-991-00	s RES, ADJ, METAL 2.2K
RV701	1-228-993-00	s RES, ADJ, METAL 4.7K
RV702	1-228-991-00	s RES, ADJ, METAL 2.2K
RV703	1-228-993-00	s RES, ADJ, METAL 4.7K
RV704	1-228-990-00	s RES, ADJ, METAL 1K
RV705	1-228-995-00	s RES, ADJ, METAL 22K
RV807	1-228-997-00	s RES, ADJ, METAL 100K
RV808	1-228-996-00	s RES, ADJ, METAL 47K
S701	1-552-509-00	s SWITCH, DIP 1-CKT
T502	1-426-184-11	s TRANSFORMER, BURST AMP
TH650	1-800-200-00	s THERMISTOR S-3K

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

DP-62 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-622-733-11	o PRINTED CIRCUIT BOARD, DP-62
CN3	1-535-761-11	o CABLE, JUMPER 23P
D201	8-719-942-19	s LED LB402VK
D202	8-719-942-19	s LED LB402VK
D203	8-719-942-19	s LED LB402VK
D204	8-719-942-19	s LED LB402VK
S201	1-552-539-00	s SWITCH, TACTILE
S202	1-552-539-00	s SWITCH, TACTILE

DUS-92 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-615-924-11	o PRINTED CIRCUIT BOARD, DUS-92
1pc	8-825-578-22	s HEAD, ACE

DUS-147 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-622-261-11	o PRINTED CIRCUIT BOARD, DUS-147

DUS-271 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-629-480-12	o PRINTED CIRCUIT BOARD, DUS-271
R1	1-215-394-00	s METAL 75 1% 1/6W
R2	1-215-394-00	s METAL 75 1% 1/6W
R3	1-215-394-00	s METAL 75 1% 1/6W
S1	1-571-083-21	s SWITCH, SLIDE
S2	1-571-083-21	s SWITCH, SLIDE

EC-32 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-629-475-11	o PRINTED CIRCUIT BOARD, EC-32
1pc	8-825-514-20	s HEAD, CTL PP170-58

HN-84 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-622-726-11	o PRINTED CIRCUIT BOARD, HN-84
1pc	8-825-771-31	s HEAD, TIME CODE PP295-58

HN-130 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-629-474-11	o PRINTED CIRCUIT BOARD, HN-130
1pc	8-825-544-20	s HEAD, ERASE

HP-42 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-629-477-11	o PRINTED CIRCUIT BOARD, HP-42
C1	1-161-379-00	s CERAMIC 0.01uF 20% 25V
RV1	1-237-703-11	s RES, VAR, CARBON 2K/2K
RV2	1-237-703-11	s RES, VAR, CARBON 2K/2K

NOTE: Please see pages 16-39 thru 16-43 for the parts that
are not listed in the parts list.

KY-159 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6717-525-A	o MOUNTED CIRCUIT BOARD, KY-159
4pcs	3-733-617-01	s HOLDER, BUZZER
4pcs	3-733-618-01	s PIN, BUZZER HOLDER
1pc	3-718-657-01	o HOLDER, LED
1pc	7-684-023-04	s N 3, TYPE 2
1pc	7-682-649-09	s SCREW +PS 3X10
1pc	3-733-652-01	o SPACER, 7 SEG
BT1	1-528-229-11	o BATTERY, LITHIUM CR-2450
C1	1-124-480-11	s ELECT 470uF 20% 25V
C2	1-162-210-31	s CERAMIC 30PF 5% 50V
C3	1-162-210-31	s CERAMIC 30PF 5% 50V
C5	1-124-480-11	s ELECT 470uF 20% 25V
C6	1-124-120-11	s ELECT 220uF 20% 25V
C8	1-125-443-11	s DOUBLE LAYERS 0.047FARAD 5.5V
C9	1-126-094-11	s ELECT 4.7uF 20% 35V
C10	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C12	1-162-210-31	s CERAMIC 30PF 5% 50V
C13	1-162-210-31	s CERAMIC 30PF 5% 50V
C15	1-124-477-11	s ELECT 47uF 20% 25V
C17	1-126-094-11	s ELECT 4.7uF 20% 35V
C21	1-102-110-00	s CERAMIC 220PF 10% 50V
D1	8-719-911-19	s DIODE 1SS119
D9	8-719-911-19	s DIODE 1SS119
D10	8-719-911-19	s DIODE 1SS119
D11	8-719-911-19	s DIODE 1SS119
D12	8-719-911-19	s DIODE 1SS119
D13	8-719-911-19	s DIODE 1SS119
D14	8-719-911-19	s DIODE 1SS119
D15	8-719-911-19	s DIODE 1SS119
D16	8-719-911-19	s DIODE 1SS119
D17	8-719-911-19	s DIODE 1SS119
D18	8-719-911-19	s DIODE 1SS119
D19	8-719-911-19	s DIODE 1SS119
D20	8-719-911-19	s DIODE 1SS119
D21	8-719-911-19	s DIODE 1SS119
D22	8-719-911-19	s DIODE 1SS119
D23	8-719-911-19	s DIODE 1SS119
D24	8-719-911-19	s DIODE 1SS119
D25	8-719-911-19	s DIODE 1SS119
D26	8-719-911-19	s DIODE 1SS119
D27	8-719-911-19	s DIODE 1SS119
D28	8-719-911-19	s DIODE 1SS119
D29	8-719-104-10	s DIODE 1SS99
D45	8-719-911-19	s DIODE 1SS119
D46	8-719-911-19	s DIODE 1SS119
D48	8-719-200-02	s DIODE 10E2
D49	8-719-911-19	s DIODE 1SS119
D51	8-719-104-10	s DIODE 1SS99
D52	8-719-911-19	s DIODE 1SS119
D54	8-719-911-19	s DIODE 1SS119
D55	8-719-911-19	s DIODE 1SS119
D101	8-719-939-39	s LED GL5HD8, RED
D102	8-719-802-11	s LED TLUG154, GRN
D103	8-719-939-39	s LED GL5HD8, RED
D104	8-719-939-39	s LED GL5HD8, RED
D105	8-719-939-39	s LED GL5HD8, RED
D106	8-719-939-39	s LED GL5HD8, RED

(KY-159 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D107	8-719-939-39	s LED GL5HD8, RED
D108	8-719-939-39	s LED GL5HD8, RED
D109	8-719-939-39	s LED GL5HD8, RED
D110	8-719-939-39	s LED GL5HD8, RED
D111	8-719-939-39	s LED GL5HD8, RED
D112	8-719-939-39	s LED GL5HD8, RED
D113	8-719-939-39	s LED GL5HD8, RED
D114	8-719-820-28	s LED TLG-256, GRN
D115	8-719-820-28	s LED TLG-256, GRN
D116	8-719-939-39	s LED GL5HD8, RED
D117	8-719-802-11	s LED TLUG154, GRN
IC1	8-759-605-23	s IC M50747H-601SP
IC2	8-759-645-16	s IC M54516P
IC3	8-759-645-16	s IC M54516P
IC4	8-759-645-16	s IC M54516P
IC5	8-759-600-68	s IC M54562P
IC6	8-759-982-21	s IC RC78L05A
IC7	8-759-937-29	s IC MB88201H-539N
IC8	8-759-604-35	s IC MSF7BM05
Q2	8-729-900-67	s TRANSISTOR DTA124XS
Q3	8-729-900-67	s TRANSISTOR DTA124XS
Q4	8-729-900-67	s TRANSISTOR DTA124XS
Q5	8-729-281-52	s TRANSISTOR 2SC1815-Y
Q6	8-729-281-52	s TRANSISTOR 2SC1815-Y
Q8	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q9	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q10	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q11	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q12	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q13	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q14	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q15	8-729-900-89	s TRANSISTOR DTC144ES
R24	1-249-404-00	s CARBON 82 5% 1/4W
R25	1-249-404-00	s CARBON 82 5% 1/4W
R26	1-249-404-00	s CARBON 82 5% 1/4W
R27	1-249-404-00	s CARBON 82 5% 1/4W
R28	1-249-404-00	s CARBON 82 5% 1/4W
R29	1-249-404-00	s CARBON 82 5% 1/4W
R30	1-249-404-00	s CARBON 82 5% 1/4W
R31	1-249-404-00	s CARBON 82 5% 1/4W
R32	1-247-903-00	s CARBON 1M 5% 1/4W
RB1	1-231-410-00	s RESISTOR BLOCK 10Kx8
RB2	1-231-410-00	s RESISTOR BLOCK 10Kx8
S1	1-552-539-00	s SWITCH, TACTILE
S9	1-552-539-00	s SWITCH, TACTILE
S10	1-552-539-00	s SWITCH, TACTILE
S11	1-552-539-00	s SWITCH, TACTILE
S12	1-552-539-00	s SWITCH, TACTILE
S13	1-552-539-00	s SWITCH, TACTILE
S14	1-552-539-00	s SWITCH, TACTILE
S15	1-552-539-00	s SWITCH, TACTILE
S16	1-552-539-00	s SWITCH, TACTILE
S17	1-552-539-00	s SWITCH, TACTILE
S18	1-552-539-00	s SWITCH, TACTILE
S19	1-552-539-00	s SWITCH, TACTILE
S20	1-516-961-00	s SWITCH, LEVER SLIDE
S23	1-552-539-00	s SWITCH, TACTILE

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(KY-159 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
S24	1-552-539-00	s SWITCH, TACTILE
S25	1-552-539-00	s SWITCH, TACTILE
S26	1-552-539-00	s SWITCH, TACTILE
S27	1-552-539-00	s SWITCH, TACTILE
S28	1-516-995-00	s SWITCH, LEVER SLIDE
S29	1-552-539-00	s SWITCH, TACTILE
X1	1-567-869-11	s RESONATOR, CERAMIC 9.83MHz
X2	1-567-192-11	s RESONATOR, CERAMIC 4.00MHz

LM-13 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-618-600-11	o PRINTED CIRCUIT BOARD, LM-13
M1003	1-541-376-11	s MOTOR, DC DNR-4700A "THREADING"

LP-41 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-623-101-11	o PRINTED CIRCUIT BOARD, LP-41
D1	8-719-800-89	s LED TLY255, YEL
D2	8-719-800-89	s LED TLY255, YEL
D3	8-719-800-89	s LED TLY255, YEL
R1	1-247-706-11	s CARBON 330 5% 1/4W
R2	1-247-706-11	s CARBON 330 5% 1/4W
R3	1-247-706-11	s CARBON 330 5% 1/4W

MC-28 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-622-222-11	o PRINTED CIRCUIT BOARD, MC-28
C1	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C2	1-161-379-00	s CERAMIC 0.01uF 20% 25V

MD-60 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6727-089-A	o MOUNTED CIRCUIT BOARD, MD-60
1pc	3-733-657-01	o SHIELD (LID), MD
C1	1-124-360-00	s ELECT 1000uF 20% 16V
C2	1-124-360-00	s ELECT 1000uF 20% 16V
C3	1-124-589-11	s ELECT 47uF 20% 16V
C4	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C5	1-126-101-11	s ELECT 100uF 20% 16V
C6	1-126-101-11	s ELECT 100uF 20% 16V
C9	1-162-732-11	s CERAMIC 820PF 1% 50V
C10	1-124-584-00	s ELECT 100uF 20% 10V
C11	1-124-589-11	s ELECT 47uF 20% 16V
C12	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C17	1-124-584-00	s ELECT 100uF 20% 10V
C18	1-124-584-00	s ELECT 100uF 20% 10V
C20	1-124-584-00	s ELECT 100uF 20% 10V
C24	1-124-589-11	s ELECT 47uF 20% 16V
C25	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C29	1-126-157-11	s ELECT 10uF 20% 16V
C30	1-124-589-11	s ELECT 47uF 20% 16V
C32	1-126-157-11	s ELECT 10uF 20% 16V
C33	1-126-157-11	s ELECT 10uF 20% 16V
C35	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C36	1-126-157-11	s ELECT 10uF 20% 16V
C37	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C38	1-124-589-11	s ELECT 47uF 20% 16V
C41	1-124-120-11	s ELECT 220uF 20% 25V
C42	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C43	1-126-157-11	s ELECT 10uF 20% 16V
C44	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C45	1-124-472-11	s ELECT 470uF 20% 10V
C46	1-131-356-00	s TANTALUM 3.3uF 10% 25V
C48	1-124-360-00	s ELECT 1000uF 20% 16V
C49	1-131-374-00	s TANTALUM 33uF 10% 16V
C51	1-161-494-00	s CERAMIC 0.022uF 25V
C52	1-124-589-11	s ELECT 47uF 20% 16V
C55	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C56	1-124-589-11	s ELECT 47uF 20% 16V
C57	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C58	1-124-589-11	s ELECT 47uF 20% 16V
C59	1-124-589-11	s ELECT 47uF 20% 16V
C60	1-162-726-11	s CERAMIC 470PF 1% 50V
C63	1-124-589-11	s ELECT 47uF 20% 16V
C64	1-161-494-00	s CERAMIC 0.022uF 25V
C69	1-162-724-11	s CERAMIC 390PF 1% 50V
C70	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C73	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C77	1-161-494-00	s CERAMIC 0.022uF 25V
C79	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C81	1-161-375-00	s CERAMIC 0.0022uF 20% 50V
C84	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C85	1-161-494-00	s CERAMIC 0.022uF 25V
C86	1-161-494-00	s CERAMIC 0.022uF 25V
C89	1-126-157-11	s ELECT 10uF 20% 16V
C90	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C91	1-124-589-11	s ELECT 47uF 20% 16V
C92	1-126-094-11	s ELECT 4.7uF 20% 35V
C93	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C94	1-124-589-11	s ELECT 47uF 20% 16V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(MD-60 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C95	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C96	1-124-584-00	s ELECT 100uF 20% 10V
C97	1-161-494-00	s CERAMIC 0.022uF 25V
C98	1-161-494-00	s CERAMIC 0.022uF 25V
C102	1-124-589-11	s ELECT 47uF 20% 16V
C103	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C104	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C105	1-124-589-11	s ELECT 47uF 20% 16V
C106	1-161-494-00	s CERAMIC 0.022uF 25V
C112	1-126-157-11	s ELECT 10uF 20% 16V
C121	1-124-234-00	s ELECT 22uF 20% 16V
C201	1-124-589-11	s ELECT 47uF 20% 16V
C202	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C203	1-126-160-11	s ELECT 1uF 20% 50V
C204	1-126-157-11	s ELECT 10uF 20% 16V
C209	1-126-157-11	s ELECT 10uF 20% 16V
C210	1-126-157-11	s ELECT 10uF 20% 16V
C211	1-126-157-11	s ELECT 10uF 20% 16V
C212	1-126-157-11	s ELECT 10uF 20% 16V
C213	1-161-494-00	s CERAMIC 0.022uF 25V
C214	1-126-157-11	s ELECT 10uF 20% 16V
C215	1-126-157-11	s ELECT 10uF 20% 16V
C216	1-161-494-00	s CERAMIC 0.022uF 25V
C217	1-162-728-11	s CERAMIC 560PF 1% 50V
C218	1-126-157-11	s ELECT 10uF 20% 16V
C219	1-126-160-11	s ELECT 1uF 20% 50V
C220	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C221	1-124-589-11	s ELECT 47uF 20% 16V
C222	1-101-886-00	s CERAMIC 62PF 5% 50V
C223	1-161-494-00	s CERAMIC 0.022uF 25V
C224	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C225	1-124-589-11	s ELECT 47uF 20% 16V
C226	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C227	1-124-589-11	s ELECT 47uF 20% 16V
C228	1-161-494-00	s CERAMIC 0.022uF 25V
C230	1-161-494-00	s CERAMIC 0.022uF 25V
C231	1-161-494-00	s CERAMIC 0.022uF 25V
C233	1-124-589-11	s ELECT 47uF 20% 16V
C234	1-131-349-00	s TANTALUM 2.2uF 10% 35V
C235	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C237	1-131-349-00	s TANTALUM 2.2uF 10% 35V
C241	1-109-543-00	s DIP MICA 240PF 10% 100V
C242	1-131-345-00	s TANTALUM 0.47uF 10% 35V
C243	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C244	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C245	1-161-494-00	s CERAMIC 0.022uF 25V
C247	1-124-589-11	s ELECT 47uF 20% 16V
C248	1-126-176-11	s ELECT 220uF 20% 10V
C249	1-126-157-11	s ELECT 10uF 20% 16V
C250	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C252	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C253	1-161-494-00	s CERAMIC 0.022uF 25V
C254	1-161-494-00	s CERAMIC 0.022uF 25V
C255	1-161-494-00	s CERAMIC 0.022uF 25V
C256	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C257	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C258	1-161-494-00	s CERAMIC 0.022uF 25V
C260	1-161-494-00	s CERAMIC 0.022uF 25V
C263	1-161-494-00	s CERAMIC 0.022uF 25V

(MD-60 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C264	1-124-589-11	s ELECT 47uF 20% 16V
C301	1-126-160-11	s ELECT 1uF 20% 50V
C302	1-161-494-00	s CERAMIC 0.022uF 25V
C303	1-124-589-11	s ELECT 47uF 20% 16V
C304	1-161-494-00	s CERAMIC 0.022uF 25V
C305	1-161-494-00	s CERAMIC 0.022uF 25V
C306	1-126-160-11	s ELECT 1uF 20% 50V
C307	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C308	1-161-494-00	s CERAMIC 0.022uF 25V
C309	1-161-494-00	s CERAMIC 0.022uF 25V
C310	1-124-589-11	s ELECT 47uF 20% 16V
C312	1-124-584-00	s ELECT 100uF 20% 10V
C351	1-126-157-11	s ELECT 10uF 20% 16V
C354	1-126-157-11	s ELECT 10uF 20% 16V
C401	1-126-101-11	s ELECT 100uF 20% 16V
C402	1-124-589-11	s ELECT 47uF 20% 16V
C403	1-161-494-00	s CERAMIC 0.022uF 25V
C404	1-124-225-00	s ELECT 100uF 20% 6.3V
C408	1-124-225-00	s ELECT 100uF 20% 6.3V
C409	1-124-225-00	s ELECT 100uF 20% 6.3V
C410	1-161-494-00	s CERAMIC 0.022uF 25V
C422	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C423	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C436	1-161-494-00	s CERAMIC 0.022uF 25V
C437	1-124-589-11	s ELECT 47uF 20% 16V
C438	1-161-494-00	s CERAMIC 0.022uF 25V
C442	1-124-225-00	s ELECT 100uF 20% 6.3V
C446	1-161-494-00	s CERAMIC 0.022uF 25V
C447	1-124-589-11	s ELECT 47uF 20% 16V
C451	1-161-494-00	s CERAMIC 0.022uF 25V
C462	1-161-494-00	s CERAMIC 0.022uF 25V
C801	1-101-888-00	s CERAMIC 68PF 5% 50V
C802	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C808	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C810	1-161-379-00	s CERAMIC 0.01uF 20% 25V
CN162	1-506-471-11	s CONNECTOR, 6P, MALE
CN171	1-506-471-11	o CONNECTOR, 6P, MALE
CV801	1-141-246-00	s CAP, TRIMMER 20PF
D1	8-719-911-19	s DIODE 1SS119
D2	8-719-104-10	s DIODE 1SS99
D3	8-719-104-10	s DIODE 1SS99
D4	8-719-911-19	s DIODE 1SS119
D5	8-719-911-19	s DIODE 1SS119
D6	8-719-911-19	s DIODE 1SS119
D7	8-719-911-19	s DIODE 1SS119
D8	8-719-911-19	s DIODE 1SS119
D9	8-719-109-75	s DIODE RD4.3ES-B2
D10	8-719-911-19	s DIODE 1SS119
D11	8-719-911-19	s DIODE 1SS119
D12	8-719-911-19	s DIODE 1SS119
D13	8-719-911-19	s DIODE 1SS119
D201	8-719-911-19	s DIODE 1SS119
D202	8-719-911-19	s DIODE 1SS119
D203	8-719-911-19	s DIODE 1SS119
D204	8-719-911-19	s DIODE 1SS119
D205	8-719-915-43	s DIODE, VARICAP FC54M
D206	8-719-911-19	s DIODE 1SS119
D207	8-719-911-19	s DIODE 1SS119

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(MD-60 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D208	8-719-911-19	s DIODE 1SS119
D209	8-719-911-19	s DIODE 1SS119
D210	8-719-911-19	s DIODE 1SS119
D805	8-719-911-19	s DIODE 1SS119
DL1	1-415-403-21	s DELAY LINE 1uS
DL201	1-415-402-11	s DELAY LINE 300nS
DL402	1-415-404-21	s DELAY LINE 226nS
DL403	1-415-404-21	s DELAY LINE 226nS
FL2	1-235-477-11	s FILTER, HIGH-PASS
FL3	1-235-009-21	s FILTER, HIGH-PASS
FL201	1-235-471-11	s FILTER, LOW-PASS
FL401	1-235-475-12	s FILTER, LOW-PASS
FL402	1-235-476-21	s FILTER, BANDPASS 4.2MHz
IC1	8-752-006-12	s IC CX20061
IC2	8-759-200-60	s IC TA7060AP
IC3	8-751-310-10	s IC CX-131A
IC4	8-741-125-70	s IC BX-1257
IC5	8-752-006-12	s IC CX20061
IC6	8-749-901-11	s IC BX-1246L
IC7	8-759-982-21	s IC RC78L05A
IC201	8-752-006-12	s IC CX20061
IC202	8-752-006-12	s IC CX20061
IC203	8-751-880-00	s IC CX188
IC204	8-752-006-12	s IC CX20061
IC301	8-741-126-20	s IC BX1262
IC302	8-752-006-12	s IC CX20061
IC303	8-759-981-91	s IC RC4558DQ
IC401	8-743-890-00	s IC BX-389
IC403	8-752-201-30	s IC CX22013
IC404	8-752-030-30	s IC CXA1020P
IC405	8-743-890-00	s IC BX-389
IC406	8-743-890-00	s IC BX-389
IC407	8-743-890-00	s IC BX-389
L2	1-410-482-31	s INDUCTOR 100uH
L4	1-410-482-31	s INDUCTOR 100uH
L8	1-407-504-00	s INDUCTOR 10mH
L9	1-410-482-31	s INDUCTOR 100uH
L10	1-410-482-31	s INDUCTOR 100uH
L12	1-410-482-31	s INDUCTOR 100uH
L13	1-410-482-31	s INDUCTOR 100uH
L14	1-410-482-31	s INDUCTOR 100uH
L16	1-410-471-11	s INDUCTOR 12uH
L20	1-410-482-31	s INDUCTOR 100uH
L21	1-410-482-31	s INDUCTOR 100uH
L22	1-410-482-31	s INDUCTOR 100uH
L24	1-410-482-31	s INDUCTOR 100uH
L201	1-410-482-31	s INDUCTOR 100uH
L202	1-410-119-11	s INDUCTOR 1mH
L203	1-410-482-31	s INDUCTOR 100uH
L204	1-410-478-11	s INDUCTOR 47uH
L205	1-410-482-31	s INDUCTOR 100uH
L206	1-410-482-31	s INDUCTOR 100uH
L207	1-410-476-11	s INDUCTOR 33uH
L208	1-410-482-31	s INDUCTOR 100uH
L209	1-410-090-41	s INDUCTOR 18mH
L212	1-410-482-31	s INDUCTOR 100uH
L301	1-410-482-31	s INDUCTOR 100uH
L304	1-410-482-31	s INDUCTOR 100uH

(MD-60 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
L401	1-410-482-31	s INDUCTOR 100uH
L408	1-410-482-31	s INDUCTOR 100uH
L409	1-410-482-31	s INDUCTOR 100uH
L410	1-410-466-41	s INDUCTOR 4.7uH
L801	1-410-482-31	s INDUCTOR 100uH
L802	1-410-470-11	s INDUCTOR 10uH
LV1	1-407-566-00	s COIL, VAR 3.3uH
LV301	1-407-572-00	s COIL, VAR 33uH
Q1	8-729-603-50	s TRANSISTOR 2SC403SP
Q2	8-729-603-50	s TRANSISTOR 2SC403SP
Q3	8-729-603-50	s TRANSISTOR 2SC403SP
Q6	8-729-603-50	s TRANSISTOR 2SC403SP
Q7	8-729-603-50	s TRANSISTOR 2SC403SP
Q8	8-729-603-50	s TRANSISTOR 2SC403SP
Q9	8-729-201-05	s TRANSISTOR 2SC2878-B
Q10	8-729-603-50	s TRANSISTOR 2SC403SP
Q11	8-729-603-50	s TRANSISTOR 2SC403SP
Q12	8-729-603-50	s TRANSISTOR 2SC403SP
Q13	8-729-603-50	s TRANSISTOR 2SC403SP
Q14	8-729-900-89	s TRANSISTOR DTC144ES
Q15	8-729-603-50	s TRANSISTOR 2SC403SP
Q16	8-729-603-50	s TRANSISTOR 2SC403SP
Q17	8-729-603-50	s TRANSISTOR 2SC403SP
Q18	8-729-603-50	s TRANSISTOR 2SC403SP
Q19	8-729-603-50	s TRANSISTOR 2SC403SP
Q20	8-729-603-50	s TRANSISTOR 2SC403SP
Q21	8-729-201-05	s TRANSISTOR 2SC2878-B
Q22	8-729-603-50	s TRANSISTOR 2SC403SP
Q23	8-729-119-76	s TRANSISTOR 2SA1175
Q24	8-729-119-76	s TRANSISTOR 2SA1175
Q25	8-729-603-50	s TRANSISTOR 2SC403SP
Q26	8-729-603-50	s TRANSISTOR 2SC403SP
Q27	8-729-603-50	s TRANSISTOR 2SC403SP
Q28	8-729-201-05	s TRANSISTOR 2SC2878-B
Q31	8-729-201-05	s TRANSISTOR 2SC2878-B
Q33	8-729-900-89	s TRANSISTOR DTC144ES
Q34	8-729-113-34	s TRANSISTOR 2SB733-5
Q35	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q36	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q37	8-729-603-50	s TRANSISTOR 2SC403SP
Q38	8-729-119-76	s TRANSISTOR 2SA1175
Q43	8-729-603-50	s TRANSISTOR 2SC403SP
Q44	8-729-900-89	s TRANSISTOR DTC144ES
Q45	8-729-201-05	s TRANSISTOR 2SC2878-B
Q201	8-729-603-50	s TRANSISTOR 2SC403SP
Q203	8-729-603-50	s TRANSISTOR 2SC403SP
Q204	8-729-603-50	s TRANSISTOR 2SC403SP
Q205	8-729-603-50	s TRANSISTOR 2SC403SP
Q206	8-729-603-50	s TRANSISTOR 2SC403SP
Q207	8-729-119-76	s TRANSISTOR 2SA1175
Q208	8-729-603-50	s TRANSISTOR 2SC403SP
Q209	8-729-603-50	s TRANSISTOR 2SC403SP
Q210	8-729-603-50	s TRANSISTOR 2SC403SP
Q211	8-729-603-50	s TRANSISTOR 2SC403SP
Q212	8-729-119-76	s TRANSISTOR 2SA1175
Q213	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q214	8-729-603-50	s TRANSISTOR 2SC403SP
Q215	8-729-603-50	s TRANSISTOR 2SC403SP

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(MD-60 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q216	8-729-603-50	s TRANSISTOR 2SC403SP
Q218	8-729-603-50	s TRANSISTOR 2SC403SP
Q222	8-729-119-76	s TRANSISTOR 2SA1175
Q301	8-729-603-50	s TRANSISTOR 2SC403SP
Q351	8-729-603-50	s TRANSISTOR 2SC403SP
Q352	8-729-603-50	s TRANSISTOR 2SC403SP
Q401	8-729-603-50	s TRANSISTOR 2SC403SP
Q402	8-729-603-50	s TRANSISTOR 2SC403SP
Q403	8-729-603-50	s TRANSISTOR 2SC403SP
Q407	8-729-603-50	s TRANSISTOR 2SC403SP
Q408	8-729-603-50	s TRANSISTOR 2SC403SP
Q415	8-729-603-50	s TRANSISTOR 2SC403SP
Q416	8-729-110-52	s TRANSISTOR 2SA1005-L
Q417	8-729-110-52	s TRANSISTOR 2SA1005-L
Q418	8-729-190-12	s TRANSISTOR 2SC2901
Q419	8-729-190-12	s TRANSISTOR 2SC2901
Q420	8-729-110-52	s TRANSISTOR 2SA1005-L
Q421	8-729-603-50	s TRANSISTOR 2SC403SP
Q422	8-729-603-50	s TRANSISTOR 2SC403SP
Q423	8-729-190-12	s TRANSISTOR 2SC2901
Q424	8-729-190-12	s TRANSISTOR 2SC2901
Q425	8-729-110-52	s TRANSISTOR 2SA1005-L
Q426	8-729-110-52	s TRANSISTOR 2SA1005-L
Q427	8-729-190-12	s TRANSISTOR 2SC2901
Q428	8-729-603-50	s TRANSISTOR 2SC403SP
Q429	8-729-201-05	s TRANSISTOR 2SC2878-B
Q803	8-729-900-89	s TRANSISTOR DTC144ES
Q807	8-729-603-50	s TRANSISTOR 2SC403SP
Q808	8-729-603-50	s TRANSISTOR 2SC403SP
Q819	8-729-201-04	s TRANSISTOR 2SC2878
R48	1-247-852-11	s CARBON 7.5K 5% 1/4W
R60	1-247-893-11	s CARBON 390K 5% 1/4W
R138	▲1-532-679-00	s LINK, IC 0.6A
R179	1-247-887-00	s CARBON 220K 5% 1/4W
R180	1-247-887-00	s CARBON 220K 5% 1/4W
R241	1-247-903-00	s CARBON 1M 5% 1/4W
R279	1-249-442-11	s CARBON 510 5% 1/4W
R810	1-247-844-11	s CARBON 3.6K 5% 1/4W
R850	▲1-532-679-00	s LINK, IC 0.6A
RV1	1-228-991-00	s RES, ADJ, METAL 2.2K
RV2	1-228-990-00	s RES, ADJ, METAL 1K
RV3	1-228-993-00	s RES, ADJ, METAL 4.7K
RV4	1-228-993-00	s RES, ADJ, METAL 4.7K
RV5	1-228-999-00	s RES, ADJ, METAL 470K
RV6	1-228-993-00	s RES, ADJ, METAL 4.7K
RV7	1-228-991-00	s RES, ADJ, METAL 2.2K
RV8	1-228-996-00	s RES, ADJ, METAL 47K
RV9	1-228-995-00	s RES, ADJ, METAL 22K
RV10	1-228-991-00	s RES, ADJ, METAL 2.2K
RV13	1-228-997-00	s RES, ADJ, METAL 100K
RV201	1-228-993-00	s RES, ADJ, METAL 4.7K
RV202	1-228-993-00	s RES, ADJ, METAL 4.7K
RV203	1-228-993-00	s RES, ADJ, METAL 4.7K
RV301	1-228-996-00	s RES, ADJ, METAL 47K
RV302	1-228-990-00	s RES, ADJ, METAL 1K
RV303	1-228-999-00	s RES, ADJ, METAL 470K
RV401	1-228-989-00	s RES, ADJ, METAL 470
RV404	1-228-994-00	s RES, ADJ, METAL 10K
RV405	1-228-989-00	s RES, ADJ, METAL 470

(MD-60 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
RV406	1-228-991-00	s RES, ADJ, METAL 2.2K
RV407	1-228-990-00	s RES, ADJ, METAL 1K
RV408	1-228-989-00	s RES, ADJ, METAL 470
RV409	1-228-989-00	s RES, ADJ, METAL 470
T201	1-425-880-21	s TRANSFORMER, BURST AMP
TH1	1-800-200-00	s THERMISTOR S-3K
X201	1-527-231-00	s CRYSTAL 4.433618MHz
X801	1-567-504-11	s CRYSTAL 4.433619MHz

MT-53 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-629-478-11	o PRINTED CIRCUIT BOARD, MT-53
D1	8-719-820-28	s LED TLG-256, GRN
D2	8-719-820-27	s LED TLY-256, YEL
D3	8-719-820-27	s LED TLY-256, YEL
D4	8-719-820-27	s LED TLY-256, YEL
D5	8-719-820-27	s LED TLY-256, YEL
D6	8-719-820-27	s LED TLY-256, YEL

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

NR-31 BOARD

Ref. No.
or Q'ty Part No. SP Description

1pc AA-6727-039-A o MOUNTED CIRCUIT BOARD, NR-31

C1	1-124-477-11	s	ELECT 47uF 20% 25V
C2	1-126-101-11	s	ELECT 100uF 20% 16V
C3	1-136-230-00	s	FILM 0.0022uF 3% 100V
C4	1-136-230-00	s	FILM 0.0022uF 3% 100V
C5	1-136-257-00	s	FILM 0.0039uF 3% 100V
C6	1-131-345-00	s	TANTALUM 0.47uF 10% 35V
C8	1-136-155-00	s	FILM 0.015uF 5% 50V
C10	1-136-169-00	s	FILM 0.22uF 5% 50V
C11	1-136-163-00	s	FILM 0.068uF 5% 50V
C13	1-130-339-00	s	FILM 0.0056uF 3% 100V
C14	1-136-153-00	s	FILM 0.01uF 5% 50V
C19	1-126-101-11	s	ELECT 100uF 20% 16V
C23	1-123-875-11	s	ELECT 10uF 20% 50V
C24	1-124-477-11	s	ELECT 47uF 20% 25V
C25	1-124-120-11	s	ELECT 220uF 20% 25V
C26	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
C27	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
C101	1-124-477-11	s	ELECT 47uF 20% 25V
C102	1-126-101-11	s	ELECT 100uF 20% 16V
C103	1-136-230-00	s	FILM 0.0022uF 3% 100V
C104	1-136-230-00	s	FILM 0.0022uF 3% 100V
C105	1-136-257-00	s	FILM 0.0039uF 3% 100V
C106	1-131-345-00	s	TANTALUM 0.47uF 10% 35V
C108	1-136-155-00	s	FILM 0.015uF 5% 50V
C110	1-136-169-00	s	FILM 0.22uF 5% 50V
C111	1-136-163-00	s	FILM 0.068uF 5% 50V
C113	1-130-339-00	s	FILM 0.0056uF 3% 100V
C114	1-136-153-00	s	FILM 0.01uF 5% 50V
C119	1-126-101-11	s	ELECT 100uF 20% 16V
C123	1-123-875-11	s	ELECT 10uF 20% 50V
C124	1-124-477-11	s	ELECT 47uF 20% 25V
C125	1-126-101-11	s	ELECT 100uF 20% 16V
C126	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
C127	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
C201	1-131-372-00	s	TANTALUM 15uF 10% 16V
C202	1-131-363-00	s	TANTALUM 4.7uF 10% 20V
C203	1-136-164-00	s	FILM 0.082uF 5% 50V
C204	1-131-372-00	s	TANTALUM 15uF 10% 16V
C205	1-131-363-00	s	TANTALUM 4.7uF 10% 20V
C206	1-136-153-00	s	FILM 0.01uF 5% 50V
C207	1-136-164-00	s	FILM 0.082uF 5% 50V
C210	1-124-477-11	s	ELECT 47uF 20% 25V
C211	1-124-477-11	s	ELECT 47uF 20% 25V
C212	1-124-902-00	s	ELECT 0.47uF 20% 50V
C213	1-124-927-11	s	ELECT 4.7uF 20% 100V
C214	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C215	1-124-927-11	s	ELECT 4.7uF 20% 100V
C216	1-126-101-11	s	ELECT 100uF 20% 16V
C218	1-126-176-11	s	ELECT 220uF 20% 10V
C301	1-131-404-00	s	TANTALUM, 0.22uF 20% 35V
C302	1-124-120-11	s	ELECT 220uF 20% 25V
C303	1-131-372-00	s	TANTALUM 15uF 10% 16V
C304	1-124-927-11	s	ELECT 4.7uF 20% 100V
C305	1-124-120-11	s	ELECT 220uF 20% 25V
C306	1-131-372-00	s	TANTALUM 15uF 10% 16V
C307	1-126-094-11	s	ELECT 4.7uF 20% 35V
C308	1-136-164-00	s	FILM 0.082uF 5% 50V

(NR-31 BOARD)

Ref. No.
or Q'ty Part No. SP Description

C309	1-136-164-00	s	FILM 0.082uF 5% 50V
C310	1-136-168-00	s	FILM 0.18uF 5% 50V
C311	1-136-168-00	s	FILM 0.18uF 5% 50V
C312	1-136-168-00	s	FILM 0.18uF 5% 50V
C313	1-136-168-00	s	FILM 0.18uF 5% 50V
C316	1-136-153-00	s	FILM 0.01uF 5% 50V
C317	1-136-153-00	s	FILM 0.01uF 5% 50V
C318	1-124-589-11	s	ELECT 47uF 20% 16V
C319	1-124-589-11	s	ELECT 47uF 20% 16V
C320	1-124-589-11	s	ELECT 47uF 20% 16V
C321	1-124-589-11	s	ELECT 47uF 20% 16V
C322	1-124-589-11	s	ELECT 47uF 20% 16V
C323	1-124-589-11	s	ELECT 47uF 20% 16V
C324	1-124-589-11	s	ELECT 47uF 20% 16V
C325	1-124-589-11	s	ELECT 47uF 20% 16V
C326	1-124-589-11	s	ELECT 47uF 20% 16V
C327	1-124-589-11	s	ELECT 47uF 20% 16V
C328	1-124-589-11	s	ELECT 47uF 20% 16V
C329	1-124-589-11	s	ELECT 47uF 20% 16V
C330	1-124-589-11	s	ELECT 47uF 20% 16V
C331	1-124-589-11	s	ELECT 47uF 20% 16V
C332	1-124-589-11	s	ELECT 47uF 20% 16V
C333	1-124-589-11	s	ELECT 47uF 20% 16V
C334	1-124-589-11	s	ELECT 47uF 20% 16V
C335	1-124-589-11	s	ELECT 47uF 20% 16V
C336	1-124-589-11	s	ELECT 47uF 20% 16V
C337	1-124-589-11	s	ELECT 47uF 20% 16V
C338	1-126-157-11	s	ELECT 10uF 20% 16V
C339	1-124-234-00	s	ELECT 22uF 20% 16V
C340	1-126-157-11	s	ELECT 10uF 20% 16V
C341	1-124-234-00	s	ELECT 22uF 20% 16V
C342	1-124-234-00	s	ELECT 22uF 20% 16V
C343	1-126-157-11	s	ELECT 10uF 20% 16V
C344	1-124-234-00	s	ELECT 22uF 20% 16V
C345	1-126-157-11	s	ELECT 10uF 20% 16V
C346	1-126-094-11	s	ELECT 4.7uF 20% 35V
C347	1-123-875-11	s	ELECT 10uF 20% 50V
C348	1-126-101-11	s	ELECT 100uF 20% 16V
C349	1-123-875-11	s	ELECT 10uF 20% 50V
C350	1-126-157-11	s	ELECT 10uF 20% 16V
C351	1-123-875-11	s	ELECT 10uF 20% 50V
C352	1-136-153-00	s	FILM 0.01uF 5% 50V
C353	1-126-176-11	s	ELECT 220uF 20% 10V
C400	1-123-356-00	s	ELECT 10uF 20% 50V
C404	1-126-233-11	s	ELECT 22uF 20% 50V
C405	1-162-280-31	s	CERAMIC 82PF 10% 50V
C406	1-124-477-11	s	ELECT 47uF 20% 25V
C407	1-124-477-11	s	ELECT 47uF 20% 25V
C408	1-126-101-11	s	ELECT 100uF 20% 16V
C409	1-126-101-11	s	ELECT 100uF 20% 16V
C410	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C412	1-124-927-11	s	ELECT 4.7uF 20% 100V
C413	1-124-477-11	s	ELECT 47uF 20% 25V
C414	1-123-875-11	s	ELECT 10uF 20% 50V
C415	1-123-875-11	s	ELECT 10uF 20% 50V
C416	1-123-875-11	s	ELECT 10uF 20% 50V
C417	1-124-477-11	s	ELECT 47uF 20% 25V
C418	1-124-477-11	s	ELECT 47uF 20% 25V
C419	1-162-207-31	s	CERAMIC 22PF 5% 50V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(NR-31 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C420	1-124-477-11	s ELECT 47uF 20% 25V
C422	1-123-875-11	s ELECT 10uF 20% 50V
C423	1-126-101-11	s ELECT 100uF 20% 16V
C424	1-123-875-11	s ELECT 10uF 20% 50V
C425	1-162-286-31	s CERAMIC 220PF 10% 50V
C426	1-123-875-11	s ELECT 10uF 20% 50V
C427	1-124-455-00	s ELECT 100uF 20% 16V
C428	1-123-875-11	s ELECT 10uF 20% 50V
C430	1-124-455-00	s ELECT 100uF 20% 16V
C431	1-126-157-11	s ELECT 10uF 20% 16V
C432	1-126-157-11	s ELECT 10uF 20% 16V
C433	1-123-875-11	s ELECT 10uF 20% 50V
C436	1-124-455-00	s ELECT 100uF 20% 16V
C437	1-123-875-11	s ELECT 10uF 20% 50V
C438	1-123-875-11	s ELECT 10uF 20% 50V
C439	1-126-233-11	s ELECT 22uF 20% 50V
C440	1-124-472-11	s ELECT 470uF 20% 10V
C441	1-124-927-11	s ELECT 4.7uF 20% 100V
C442	1-123-875-11	s ELECT 10uF 20% 50V
C443	1-123-875-11	s ELECT 10uF 20% 50V
C444	1-124-455-00	s ELECT 100uF 20% 16V
C445	1-124-477-11	s ELECT 47uF 20% 25V
CP1	1-236-010-11	s FILTER, LOW-PASS
CP101	1-236-010-11	s FILTER, LOW-PASS
D1	8-719-911-19	s DIODE 1SS119
D2	8-719-911-19	s DIODE 1SS119
D3	8-719-911-19	s DIODE 1SS119
D4	8-719-911-19	s DIODE 1SS119
D5	8-719-911-19	s DIODE 1SS119
D6	8-719-911-19	s DIODE 1SS119
D101	8-719-911-19	s DIODE 1SS119
D102	8-719-911-19	s DIODE 1SS119
D103	8-719-911-19	s DIODE 1SS119
D104	8-719-911-19	s DIODE 1SS119
D105	8-719-911-19	s DIODE 1SS119
D106	8-719-911-19	s DIODE 1SS119
D201	8-729-105-68	s TRANSISTOR 2SC3356-K
D202	8-719-911-19	s DIODE 1SS119
D203	8-719-911-19	s DIODE 1SS119
D301	8-719-911-19	s DIODE 1SS119
D302	8-719-911-19	s DIODE 1SS119
D303	8-719-911-19	s DIODE 1SS119
D304	8-719-911-19	s DIODE 1SS119
D305	8-719-911-19	s DIODE 1SS119
D306	8-719-911-19	s DIODE 1SS119
D307	8-729-105-68	s TRANSISTOR 2SC3356-K
D400	8-719-911-19	s DIODE 1SS119
D401	8-719-101-97	s DIODE 1SS97-1
D402	8-719-101-97	s DIODE 1SS97-1
D403	8-719-911-19	s DIODE 1SS119
D404	8-719-911-19	s DIODE 1SS119
D405	8-719-911-19	s DIODE 1SS119
D406	8-719-911-19	s DIODE 1SS119
D407	8-719-911-19	s DIODE 1SS119
D408	8-719-911-19	s DIODE 1SS119
D409	8-719-911-19	s DIODE 1SS119
D410	8-729-105-68	s TRANSISTOR 2SC3356-K
D411	8-729-105-68	s TRANSISTOR 2SC3356-K

(NR-31 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
IC1	8-752-018-80	s IC CX20188
IC2	8-759-981-90	s IC RC4558DD
IC3	8-759-208-12	s IC TC4016BPHB
IC102	8-759-981-90	s IC RC4558DD
IC103	8-759-208-12	s IC TC4016BPHB
IC201	8-759-340-13	s IC HD14013BP
IC202	8-759-981-90	s IC RC4558DD
IC203	8-759-240-71	s IC TC4071BP
IC204	8-759-240-11	s IC TC4011BP
IC205	8-759-240-11	s IC TC4011BP
IC302	8-759-132-40	s IC UPC324C
IC303	8-759-969-13	s IC SN16913P
IC304	8-759-969-13	s IC SN16913P
IC305	8-759-969-13	s IC SN16913P
IC306	8-759-969-13	s IC SN16913P
IC310	8-759-981-74	s IC LM2904S
IC311	8-759-981-74	s IC LM2904S
IC401	8-759-981-57	s IC RC2043DD
IC402	8-759-981-64	s IC LM2903DQ
IC403	8-759-922-36	s IC CX20060
IC404	8-759-922-36	s IC CX20060
IC405	8-759-982-02	s IC RC4562DD
IC406	8-759-922-36	s IC CX20060
IC407	8-759-922-36	s IC CX20060
IC408	8-759-982-25	s IC RC78L09A
PS10	▲1-532-727-11	s LINK, IC 0.25A
Q1	8-729-900-65	s TRANSISTOR DTA144ES
Q101	8-729-900-65	s TRANSISTOR DTA144ES
Q201	8-729-900-89	s TRANSISTOR DTC144ES
Q202	8-729-119-78	s TRANSISTOR 2SC2785
Q203	8-729-119-78	s TRANSISTOR 2SC2785
Q204	8-729-119-78	s TRANSISTOR 2SC2785
Q205	8-729-201-05	s TRANSISTOR 2SC2878-B
Q206	8-729-900-65	s TRANSISTOR DTA144ES
Q207	8-729-201-05	s TRANSISTOR 2SC2878-B
Q208	8-729-900-65	s TRANSISTOR DTA144ES
Q301	8-729-900-89	s TRANSISTOR DTC144ES
Q302	8-729-900-89	s TRANSISTOR DTC144ES
Q303	8-729-900-89	s TRANSISTOR DTC144ES
Q304	8-729-900-89	s TRANSISTOR DTC144ES
Q305	8-729-900-89	s TRANSISTOR DTC144ES
Q306	8-729-119-76	s TRANSISTOR 2SA1175
Q307	8-729-119-76	s TRANSISTOR 2SA1175
Q308	8-729-119-76	s TRANSISTOR 2SA1175
Q309	8-729-119-76	s TRANSISTOR 2SA1175
Q401	8-729-900-89	s TRANSISTOR DTC144ES
Q402	8-729-201-05	s TRANSISTOR 2SC2878-B
Q403	8-729-201-05	s TRANSISTOR 2SC2878-B
Q405	8-729-119-78	s TRANSISTOR 2SC2785
Q406	8-729-119-76	s TRANSISTOR 2SA1175
Q407	8-729-900-89	s TRANSISTOR DTC144ES
Q408	8-729-119-78	s TRANSISTOR 2SC2785
Q409	8-729-900-65	s TRANSISTOR DTA144ES
Q410	8-729-201-05	s TRANSISTOR 2SC2878-B
Q411	8-729-119-78	s TRANSISTOR 2SC2785
Q412	8-729-201-05	s TRANSISTOR 2SC2878-B
Q413	8-729-201-05	s TRANSISTOR 2SC2878-B

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(NR-31 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q414	8-729-201-05	s TRANSISTOR 2SC2878-B
Q415	8-729-119-76	s TRANSISTOR 2SA1175
Q416	8-729-900-89	s TRANSISTOR DTC144ES
Q417	8-729-119-78	s TRANSISTOR 2SC2785
Q418	8-729-119-76	s TRANSISTOR 2SA1175
Q419	8-729-900-65	s TRANSISTOR DTA144ES
R10	1-247-903-00	s CARBON 1M 5% 1/4W
R17	1-247-889-00	s CARBON 270K 5% 1/4W
R21	1-247-889-00	s CARBON 270K 5% 1/4W
R23	1-247-889-00	s CARBON 270K 5% 1/4W
R24	1-247-889-00	s CARBON 270K 5% 1/4W
R25	1-247-897-11	s CARBON 560K 5% 1/4W
R26	1-247-903-00	s CARBON 1M 5% 1/4W
R27	1-247-903-00	s CARBON 1M 5% 1/4W
R28	1-247-903-00	s CARBON 1M 5% 1/4W
R29	1-247-895-00	s CARBON 470K 5% 1/4W
R30	1-247-883-00	s CARBON 150K 5% 1/4W
R31	1-247-899-11	s CARBON 680K 5% 1/4W
R110	1-247-903-00	s CARBON 1M 5% 1/4W
R117	1-247-889-00	s CARBON 270K 5% 1/4W
R121	1-247-889-00	s CARBON 270K 5% 1/4W
R123	1-247-889-00	s CARBON 270K 5% 1/4W
R124	1-247-889-00	s CARBON 270K 5% 1/4W
R125	1-247-897-11	s CARBON 560K 5% 1/4W
R126	1-247-903-00	s CARBON 1M 5% 1/4W
R127	1-247-903-00	s CARBON 1M 5% 1/4W
R128	1-247-903-00	s CARBON 1M 5% 1/4W
R129	1-247-895-00	s CARBON 470K 5% 1/4W
R130	1-247-883-00	s CARBON 150K 5% 1/4W
R131	1-247-899-11	s CARBON 680K 5% 1/4W
R231	1-247-887-00	s CARBON 220K 5% 1/4W
R245	1-247-899-11	s CARBON 680K 5% 1/4W
R318	1-247-885-00	s CARBON 180K 5% 1/4W
R319	1-247-885-00	s CARBON 180K 5% 1/4W
R322	1-247-895-00	s CARBON 470K 5% 1/4W
R323	1-247-895-00	s CARBON 470K 5% 1/4W
R339	1-247-881-00	s CARBON 120K 5% 1/4W
R343	1-247-887-00	s CARBON 220K 5% 1/4W
R345	1-247-903-00	s CARBON 1M 5% 1/4W
R407	1-247-895-00	s CARBON 470K 5% 1/4W
RV11	1-230-497-11	s RES, ADJ, METAL 22K
RV111	1-230-497-11	s RES, ADJ, METAL 22K
RV211	1-230-720-11	s RES, ADJ, CARBON 4.7K
RV212	1-230-720-11	s RES, ADJ, CARBON 4.7K
RV311	1-230-726-11	s RES, ADJ, CARBON 470K
RV312	1-230-500-11	s RES, ADJ, METAL 220K
RV313	1-230-497-11	s RES, ADJ, METAL 22K
RV314	1-230-497-11	s RES, ADJ, METAL 22K
RV315	1-230-718-11	s RES, ADJ, CARBON 1K
RV316	1-230-718-11	s RES, ADJ, CARBON 1K
RV317	1-230-497-11	s RES, ADJ, METAL 22K
RV401	1-228-996-00	s RES, ADJ, METAL 47K
RV402	1-228-995-00	s RES, ADJ, METAL 22K

PD-40 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	▲A-6725-569-A	o MOUNTED CIRCUIT BOARD, PD-40
1pc	2-382-416-01	o SUPPORT, PC
C1	1-124-927-11	s ELECT 4.7uF 20% 100V
C2	1-124-927-11	s ELECT 4.7uF 20% 100V
C3	1-124-927-11	s ELECT 4.7uF 20% 100V
C4	1-124-927-11	s ELECT 4.7uF 20% 100V
D1	8-719-200-02	s DIODE 10E2
D2	8-719-200-02	s DIODE 10E2
D3	8-719-200-02	s DIODE 10E2
D4	8-719-200-02	s DIODE 10E2
D5	8-719-200-02	s DIODE 10E2
D6	8-719-200-02	s DIODE 10E2
D7	8-719-200-02	s DIODE 10E2
D8	8-719-200-02	s DIODE 10E2
D9	8-719-200-02	s DIODE 10E2
D10	8-719-200-02	s DIODE 10E2
D11	8-719-200-02	s DIODE 10E2
D12	8-719-200-02	s DIODE 10E2
D13	8-719-200-02	s DIODE 10E2
Q1	8-729-811-11	s TRANSISTOR 2SD1111
Q2	8-729-119-78	s TRANSISTOR 2SC2785
Q3	8-729-889-40	s TRANSISTOR 2SD894
Q4	8-729-811-11	s TRANSISTOR 2SD1111
Q5	8-729-119-78	s TRANSISTOR 2SC2785
Q6	8-729-889-40	s TRANSISTOR 2SD894
Q7	8-729-199-82	s TRANSISTOR 2SD998
Q8	8-729-811-11	s TRANSISTOR 2SD1111
Q9	8-729-119-78	s TRANSISTOR 2SC2785
Q10	8-729-199-82	s TRANSISTOR 2SD998
Q11	8-729-811-11	s TRANSISTOR 2SD1111
Q12	8-729-119-78	s TRANSISTOR 2SC2785
Q13	8-729-119-78	s TRANSISTOR 2SC2785
Q14	8-729-199-82	s TRANSISTOR 2SD998
R6	▲1-532-685-00	s LINK, IC 0.8A
R12	▲1-532-685-00	s LINK, IC 0.8A
R19	▲1-532-685-00	s LINK, IC 0.8A
R25	▲1-532-685-00	s LINK, IC 0.8A
R30	▲1-532-685-00	s LINK, IC 0.8A

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

PD-41 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	▲A-6725-570-A	o MOUNTED CIRCUIT BOARD, PD-41
C1	1-124-927-11	s ELECT 4.7uF 20% 100V
C2	1-124-927-11	s ELECT 4.7uF 20% 100V
C3	1-161-379-00	s CERAMIC 0.01uF 20% 25V
D1	8-719-200-02	s DIODE 10E2
D2	8-719-200-02	s DIODE 10E2
D3	8-719-200-02	s DIODE 10E2
D4	8-719-200-02	s DIODE 10E2
D5	8-719-200-02	s DIODE 10E2
D6	8-719-200-02	s DIODE 10E2
Q1	8-729-811-11	s TRANSISTOR 2SD1111
Q2	8-729-119-78	s TRANSISTOR 2SC2785
Q3	8-729-889-40	s TRANSISTOR 2SD894
Q4	8-729-811-11	s TRANSISTOR 2SD1111
Q5	8-729-119-78	s TRANSISTOR 2SC2785
Q6	8-729-889-40	s TRANSISTOR 2SD894
R6	▲1-532-685-00	s LINK, IC 0.8A
R12	▲1-532-685-00	s LINK, IC 0.8A

PH-5 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-603-737-00	o PRINTED CIRCUIT BOARD, PH-5
D1	8-719-905-58	s DIODE EQA02-06F1
Q1	8-729-810-22	s TRANSISTOR SPS102-B

PT-9 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-605-018-00	o PRINTED CIRCUIT BOARD, PT-9
Q1	8-729-377-13	s TRANSISTOR 2SA771-Y

PTC-30 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-622-260-11	o PRINTED CIRCUIT BOARD, PTC-30
IC1	8-719-939-50	s PHOTOINTERRUPTER GP-1L52
IC3	8-719-939-50	s PHOTOINTERRUPTER GP-1L52

PTC-32 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-564-026-00	o CONTACT, FEMALE, AWG26-30
1pc	1-622-638-11	o PRINTED CIRCUIT BOARD, PTC-32
C1	1-124-234-00	s ELECT 22uF 20% 16V
IC1	8-719-939-50	s PHOTOINTERRUPTER GP-1L52
IC2	8-719-939-50	s PHOTOINTERRUPTER GP-1L52
IC3	8-719-940-86	s PHOTOINTERRUPTER GP-1L53
IC4	8-719-939-50	s PHOTOINTERRUPTER GP-1L52
IC5	8-759-133-90	s IC UPC339C

PTC-33 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-622-258-11	o PRINTED CIRCUIT BOARD, PTC-33
IC1	8-719-940-86	s PHOTOINTERRUPTER GP-1L53 "THREAD END DET"
IC2	8-719-940-86	s PHOTOINTERRUPTER GP-1L53 "UNTHREAD END DET"

PTC-34 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-622-259-11	o PRINTED CIRCUIT BOARD, PTC-34
IC1	8-719-940-86	s PHOTOINTERRUPTER GP-1L53 "FR UNTHREAD END DET"

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

PTC-35 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-622-218-11	o PRINTED CIRCUIT BOARD, PTC-35
IC1A	8-719-940-86	s PHOTOINTERRUPTER GP-1L53 "TAKE-UP ROTATION DET"
IC1B	8-719-940-86	s PHOTOINTERRUPTER GP-1L53 "SUPPLY ROTATION DET"

RM-39 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-618-873-11	o PRINTED CIRCUIT BOARD, RM-39
C1	1-101-006-00	s CERAMIC 0.047uF 50V
C2	1-101-006-00	s CERAMIC 0.047uF 50V
L1	1-410-623-11	s INDUCTOR 4.7uH
L2	1-410-623-11	s INDUCTOR 4.7uH
M1006	8-835-178-01	s MOTOR, DC FN30-T26N1E "REEL"

RM-66 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-563-890-21	s CONNECTOR, D-SUB 9P, FEMALE
1pc	1-629-473-11	o PRINTED CIRCUIT BOARD, RM-66
1pc	3-668-459-11	o SCREW, CONNECTOR
1pc	3-668-460-00	o SPRING
1pc	3-733-601-01	o BRACKET, 9P

RP-40B BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	△A-6727-090-A	o MOUNTED CIRCUIT BOARD, RP-40B
2pcs	7-682-903-11	s SCREW +PNH 3X6
C1	1-124-120-11	s ELECT 220uF 20% 25V
C2	1-124-589-11	s ELECT 47uF 20% 16V
C3	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C4	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C7	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C8	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C9	1-124-589-11	s ELECT 47uF 20% 16V
C10	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C11	1-124-589-11	s ELECT 47uF 20% 16V
C14	1-126-160-11	s ELECT 1uF 20% 50V
C15	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C16	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C17	1-124-589-11	s ELECT 47uF 20% 16V
C20	1-126-160-11	s ELECT 1uF 20% 50V
C21	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C22	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C23	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C101	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C102	1-124-589-11	s ELECT 47uF 20% 16V
C105	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C106	1-162-725-11	s CERAMIC 430PF 1% 50V
C107	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C108	1-124-589-11	s ELECT 47uF 20% 16V
C110	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C111	1-162-725-11	s CERAMIC 430PF 1% 50V
C120	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C121	1-161-021-11	s CERAMIC 0.047uF 10% 25V
CN183	1-506-471-11	o CONNECTOR, 6P, MALE
CN186	1-506-471-11	s CONNECTOR, 6P, MALE
CN187	1-506-471-11	s CONNECTOR, 6P, MALE
D1	8-719-911-19	s DIODE 1SS119
D2	8-719-911-19	s DIODE 1SS119
D3	8-719-109-60	s DIODE RD2.7ES-B2
D4	8-719-911-19	s DIODE 1SS119
D101	8-719-911-19	s DIODE 1SS119
D102	8-719-911-19	s DIODE 1SS119
D103	8-719-911-19	s DIODE 1SS119
D104	8-719-911-19	s DIODE 1SS119
D105	8-719-911-19	s DIODE 1SS119
D106	8-719-911-19	s DIODE 1SS119
D107	8-719-911-19	s DIODE 1SS119
D108	8-719-911-19	s DIODE 1SS119
IC1	8-743-731-00	s IC BX-373A
IC2	8-729-801-46	s TRANSISTOR 2SC3064-F
IC3	8-741-126-50	s IC BX-1265
IC4	8-759-240-09	s IC TC4009UBP
IC5	8-729-801-46	s TRANSISTOR 2SC3064-F
IC6	8-741-126-50	s IC BX-1265
L1	1-410-482-31	s INDUCTOR 100uH
L3	1-410-482-31	s INDUCTOR 100uH
L4	1-410-482-31	s INDUCTOR 100uH
L101	1-410-482-31	s INDUCTOR 100uH
PS2	△1-532-727-11	s LINK, IC 0.25A

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(RP-40B BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q1	8-729-201-05	s TRANSISTOR 2SC2878-B
Q2	8-729-201-05	s TRANSISTOR 2SC2878-B
Q3	8-729-603-50	s TRANSISTOR 2SC403SP
Q4	8-729-603-50	s TRANSISTOR 2SC403SP
Q5	8-729-603-50	s TRANSISTOR 2SC403SP
Q6	8-729-603-50	s TRANSISTOR 2SC403SP
Q7	8-729-603-50	s TRANSISTOR 2SC403SP
Q8	8-729-201-05	s TRANSISTOR 2SC2878-B
Q101	8-729-603-50	s TRANSISTOR 2SC403SP
Q102	8-729-603-50	s TRANSISTOR 2SC403SP
Q103	8-729-603-50	s TRANSISTOR 2SC403SP
Q104	8-729-177-33	s TRANSISTOR 2SD773-4
Q105	8-729-113-33	s TRANSISTOR 2SB733-4
Q106	8-729-603-50	s TRANSISTOR 2SC403SP
Q107	8-729-603-50	s TRANSISTOR 2SC403SP
Q108	8-729-177-33	s TRANSISTOR 2SD773-4
Q109	8-729-113-33	s TRANSISTOR 2SB733-4
R1	1-249-404-00	s CARBON 82 5% 1/4W
R2	1-249-404-00	s CARBON 82 5% 1/4W
RV1	1-228-990-00	s RES, ADJ, METAL 1K
RV3	1-228-990-00	s RES, ADJ, METAL 1K
RV4	1-228-991-00	s RES, ADJ, METAL 2.2K
RV5	1-228-990-00	s RES, ADJ, METAL 1K
RV6	1-228-991-00	s RES, ADJ, METAL 2.2K
RV7	1-228-990-00	s RES, ADJ, METAL 1K
RV8	1-228-991-00	s RES, ADJ, METAL 2.2K
RV101	1-228-990-00	s RES, ADJ, METAL 1K
RV102	1-228-990-00	s RES, ADJ, METAL 1K
T1	1-426-017-00	s TRANSFORMER, AF
T2	1-426-172-11	s TRANSFORMER, HF
T3	1-426-319-11	s TRANSFORMER, PB RF
T4	1-426-172-11	s TRANSFORMER, HF
T5	1-426-320-11	s TRANSFORMER, PB RF

SE-46 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-618-599-11	o PRINTED CIRCUIT BOARD, SE-46
PC1	1-806-232-21	s DETECTOR MB-1102/SN

SV-112B BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6727-091-A	o MOUNTED CIRCUIT BOARD, SV-112B
2pcs	2-371-561-00	s BUSHING (P), INSULATING
2pcs	3-703-037-00	s INSULATOR, T0-220
2pcs	7-682-648-09	s SCREW +PS 3X8
4pcs	7-682-903-11	s SCREW +PWH 3X6
C3	1-124-499-11	s ELECT, NONPOLAR 1uF 20% 50V
C4	1-124-963-11	s ELECT 33uF 20% 16V
C6	1-161-377-00	s CERAMIC 0.0047uF 20% 50V
C7	1-161-374-11	s CERAMIC 0.0015uF 20% 50V
C9	1-124-925-11	s ELECT 2.2uF 20% 100V
C10	1-131-352-00	s TANTALUM 6.8uF 10% 35V
C12	1-161-329-00	s CERAMIC 0.0068uF 30% 25V
C13	1-124-963-11	s ELECT 33uF 20% 16V
C14	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C16	1-124-480-11	s ELECT 470uF 20% 25V
C17	1-161-057-00	s CERAMIC 0.033uF 10% 50V
C18	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C19	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C104	1-162-215-31	s CERAMIC 47PF 5% 50V
C106	1-161-047-00	s CERAMIC 0.0047uF 10% 50V
C107	1-124-477-11	s ELECT 47uF 20% 25V
C108	1-123-875-11	s ELECT 10uF 20% 50V
C109	1-124-910-11	s ELECT 47uF 20% 50V
C110	1-124-910-11	s ELECT 47uF 20% 50V
C111	1-161-042-00	s CERAMIC 0.0018uF 10% 50V
C112	1-161-042-00	s CERAMIC 0.0018uF 10% 50V
C116	1-162-286-31	s CERAMIC 220PF 10% 50V
C120	1-162-288-31	s CERAMIC 330PF 10% 50V
C301	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C302	1-161-040-00	s CERAMIC 0.0012uF 10% 50V
C304	1-126-233-11	s ELECT 22uF 20% 50V
C305	1-126-233-11	s ELECT 22uF 20% 50V
C306	1-162-286-31	s CERAMIC 220PF 10% 50V
C308	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C309	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C312	1-124-499-11	s ELECT, NONPOLAR 1uF 20% 50V
C313	1-123-875-11	s ELECT 10uF 20% 50V
C402	1-124-902-00	s ELECT 0.47uF 20% 50V
C404	1-124-902-00	s ELECT 0.47uF 20% 50V
C406	1-124-902-00	s ELECT 0.47uF 20% 50V
C408	1-124-443-00	s ELECT 100uF 20% 10V
C409	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C410	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C411	1-162-207-31	s CERAMIC 22PF 5% 50V
C412	1-162-282-31	s CERAMIC 100PF 10% 50V
C413	1-162-284-31	s CERAMIC 150PF 10% 50V
C414	1-124-477-11	s ELECT 47uF 20% 25V
C415	1-124-963-11	s ELECT 33uF 20% 16V
C418	1-162-282-31	s CERAMIC 100PF 10% 50V
C422	1-124-464-11	s ELECT 0.22uF 20% 50V
C423	1-162-288-31	s CERAMIC 330PF 10% 50V
C424	1-123-875-11	s ELECT 10uF 20% 50V
C425	1-124-925-11	s ELECT 2.2uF 20% 100V
C426	1-124-925-11	s ELECT 2.2uF 20% 100V
C429	1-124-471-00	s ELECT 1000uF 20% 6.3V
C430	1-124-463-00	s ELECT 0.1uF 20% 50V
C432	1-124-120-11	s ELECT 220uF 20% 25V
C433	1-124-499-11	s ELECT, NONPOLAR 1uF 20% 50V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SV-112B BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C434	1-124-120-11	s ELECT 220uF 20% 25V
C501	1-124-477-11	s ELECT 47uF 20% 25V
C503	1-123-875-11	s ELECT 10uF 20% 50V
C504	1-124-902-00	s ELECT 0.47uF 20% 50V
C505	1-124-120-11	s ELECT 220uF 20% 25V
C507	1-162-290-31	s CERAMIC 470PF 10% 50V
C701	1-124-477-11	s ELECT 47uF 20% 25V
C702	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C703	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C704	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C705	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C706	1-124-119-00	s ELECT 330uF 20% 16V
C707	1-124-477-11	s ELECT 47uF 20% 25V
C709	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C711	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C712	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C714	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C716	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C717	1-124-477-11	s ELECT 47uF 20% 25V
C718	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C853	1-124-252-00	s ELECT 0.33uF 20% 50V
C900	1-124-463-00	s ELECT 0.1uF 20% 50V
C901	1-162-290-31	s CERAMIC 470PF 10% 50V
C904	1-124-927-11	s ELECT 4.7uF 20% 100V
C906	1-161-329-00	s CERAMIC 0.0068uF 30% 25V
C911	1-123-875-11	s ELECT 10uF 20% 50V
C912	1-124-477-11	s ELECT 47uF 20% 25V
C913	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C914	1-126-157-11	s ELECT 10uF 20% 16V
C915	1-162-210-31	s CERAMIC 30PF 5% 50V
C916	1-162-210-31	s CERAMIC 30PF 5% 50V
C917	1-162-290-31	s CERAMIC 470PF 10% 50V
C918	1-124-910-11	s ELECT 47uF 20% 50V
C919	1-162-286-31	s CERAMIC 220PF 10% 50V
C920	1-162-286-31	s CERAMIC 220PF 10% 50V
C921	1-162-282-31	s CERAMIC 100PF 10% 50V
C922	1-162-282-31	s CERAMIC 100PF 10% 50V
C999	1-161-047-00	s CERAMIC 0.0047uF 10% 50V
CN410	1-506-471-11	s CONNECTOR, 6P, MALE
D1	8-719-911-19	s DIODE 1SS119
D2	8-719-911-19	s DIODE 1SS119
D3	8-719-911-19	s DIODE 1SS119
D4	8-719-911-19	s DIODE 1SS119
D5	8-719-911-19	s DIODE 1SS119
D6	8-719-911-19	s DIODE 1SS119
D7	8-719-911-55	s DIODE U05G
D101	8-719-911-19	s DIODE 1SS119
D103	8-719-911-19	s DIODE 1SS119
D104	8-719-911-19	s DIODE 1SS119
D105	8-719-911-19	s DIODE 1SS119
D106	8-719-911-19	s DIODE 1SS119
D107	8-719-911-19	s DIODE 1SS119
D108	8-719-911-19	s DIODE 1SS119
D109	8-719-911-19	s DIODE 1SS119
D112	8-719-911-19	s DIODE 1SS119
D113	8-719-911-19	s DIODE 1SS119
D202	8-719-911-19	s DIODE 1SS119
D204	8-719-911-19	s DIODE 1SS119

(SV-112B BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D205	8-719-911-19	s DIODE 1SS119
D206	8-719-911-19	s DIODE 1SS119
D207	8-719-911-19	s DIODE 1SS119
D208	8-719-911-19	s DIODE 1SS119
D210	8-719-109-63	s DIODE RD3.0ESB2
D211	8-719-911-19	s DIODE 1SS119
D301	8-719-911-19	s DIODE 1SS119
D302	8-719-911-19	s DIODE 1SS119
D303	8-719-911-19	s DIODE 1SS119
D402	8-719-911-19	s DIODE 1SS119
D403	8-719-911-19	s DIODE 1SS119
D404	8-719-911-19	s DIODE 1SS119
D406	8-719-911-19	s DIODE 1SS119
D407	8-719-911-19	s DIODE 1SS119
D408	8-719-911-19	s DIODE 1SS119
D409	8-719-911-19	s DIODE 1SS119
D410	8-719-911-19	s DIODE 1SS119
D411	8-719-911-19	s DIODE 1SS119
D501	8-719-911-19	s DIODE 1SS119
D600	8-719-911-19	s DIODE 1SS119
D850	8-719-911-19	s DIODE 1SS119
D851	8-719-911-19	s DIODE 1SS119
D852	8-719-911-19	s DIODE 1SS119
D853	8-719-911-19	s DIODE 1SS119
D854	8-719-911-19	s DIODE 1SS119
D865	8-719-911-19	s DIODE 1SS119
D866	8-719-911-19	s DIODE 1SS119
D870	8-719-911-19	s DIODE 1SS119
D902	8-719-911-19	s DIODE 1SS119
D903	8-719-911-19	s DIODE 1SS119
D904	8-719-911-19	s DIODE 1SS119
D905	8-719-911-19	s DIODE 1SS119
D906	8-719-911-19	s DIODE 1SS119
D907	8-719-911-19	s DIODE 1SS119
D910	8-719-911-19	s DIODE 1SS119
D911	8-719-101-97	s DIODE 1SS97-1
D912	8-719-911-19	s DIODE 1SS119
D913	8-719-911-19	s DIODE 1SS119
D914	8-719-911-19	s DIODE 1SS119
D915	8-719-911-19	s DIODE 1SS119
D916	8-719-911-19	s DIODE 1SS119
D917	8-719-911-19	s DIODE 1SS119
D919	8-719-911-19	s DIODE 1SS119
D920	8-719-911-19	s DIODE 1SS119
D921	8-719-911-19	s DIODE 1SS119
D922	8-719-911-19	s DIODE 1SS119
D923	8-719-911-19	s DIODE 1SS119
IC1	8-759-132-40	s IC UPC324C
IC2	8-759-981-95	s IC RC4558S
IC3	8-759-981-90	s IC RC4558DD
IC4	8-759-240-81	s IC TC4081BP
IC5	8-759-208-10	s IC TC4053BPHB
IC8	8-759-132-40	s IC UPC324C
IC9	8-759-132-40	s IC UPC324C
IC10	8-759-133-90	s IC UPC339C
IC12	8-759-135-80	s IC UPC358C
IC13	8-759-208-10	s IC TC4053BPHB
IC15	8-759-200-01	s IC TC4001UBP

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SV-112B BOARD)

Ref. No. or Q'ty	Part No.	SP Description
IC16	8-759-208-10 s	IC TC4053BPHB
IC17	8-751-941-05 s	IC CX194B-5
IC18	8-759-984-93 s	IC MB88505H-1054M
IC19	8-759-207-73 s	IC TC4030BPHB
IC20	8-759-208-10 s	IC TC4053BPHB
IC21	8-743-915-10 s	IC BX3915A
IC22	8-759-135-80 s	IC UPC358C
IC850	8-759-345-38 s	IC HD14538BP
IC851	8-759-345-38 s	IC HD14538BP
IC852	8-759-240-15 s	IC TC4015BP
IC853	8-759-240-69 s	IC TC4069UBP
IC854	8-759-345-38 s	IC HD14538BP
IC902	8-759-240-69 s	IC TC4069UBP
IC903	1-464-259-12 s	CORRECTION UNIT, SWITCHING
IC906	8-759-240-69 s	IC TC4069UBP
IC907	8-759-984-95 s	IC MB88201H-652M
IC908	8-759-910-43 s	IC CX23028
PS1	▲1-532-685-00 s	LINK, IC 0.8A
Q1	8-729-119-78 s	TRANSISTOR 2SC2785
Q2	8-729-119-76 s	TRANSISTOR 2SA1175
Q3	8-729-376-84 s	TRANSISTOR 2SA768-G
Q4	8-729-804-92 s	TRANSISTOR 2SD1682-T
Q5	8-729-177-42 s	TRANSISTOR 2SD774-3
Q101	8-729-900-83 s	TRANSISTOR DTC124XS
Q102	8-729-119-78 s	TRANSISTOR 2SC2785
Q103	8-729-900-83 s	TRANSISTOR DTC124XS
Q104	8-729-119-76 s	TRANSISTOR 2SA1175
Q106	8-729-119-78 s	TRANSISTOR 2SC2785
Q107	8-729-105-73 s	TRANSISTOR 2SK523-L2
Q108	8-729-900-83 s	TRANSISTOR DTC124XS
Q109	8-729-900-89 s	TRANSISTOR DTC144ES
Q110	8-729-119-78 s	TRANSISTOR 2SC2785
Q111	8-729-376-84 s	TRANSISTOR 2SA768-G
Q112	8-729-119-76 s	TRANSISTOR 2SA1175
Q113	8-729-804-92 s	TRANSISTOR 2SD1682-T
Q114	8-729-900-67 s	TRANSISTOR DTA124XS
Q201	8-729-900-83 s	TRANSISTOR DTC124XS
Q202	8-729-900-83 s	TRANSISTOR DTC124XS
Q203	8-729-900-83 s	TRANSISTOR DTC124XS
Q204	8-729-900-83 s	TRANSISTOR DTC124XS
Q206	8-729-900-83 s	TRANSISTOR DTC124XS
Q301	8-729-119-78 s	TRANSISTOR 2SC2785
Q302	8-729-119-78 s	TRANSISTOR 2SC2785
Q303	8-729-119-78 s	TRANSISTOR 2SC2785
Q304	8-729-119-78 s	TRANSISTOR 2SC2785
Q305	8-729-900-83 s	TRANSISTOR DTC124XS
Q401	8-729-119-78 s	TRANSISTOR 2SC2785
Q403	8-729-119-78 s	TRANSISTOR 2SC2785
Q404	8-729-119-78 s	TRANSISTOR 2SC2785
Q408	8-729-603-50 s	TRANSISTOR 2SC403SP
Q410	8-729-900-67 s	TRANSISTOR DTA124XS
Q411	8-729-119-78 s	TRANSISTOR 2SC2785
Q412	8-729-119-78 s	TRANSISTOR 2SC2785
Q850	8-729-900-89 s	TRANSISTOR DTC144ES
Q851	8-729-900-36 s	TRANSISTOR DTC124ES
Q852	8-729-900-89 s	TRANSISTOR DTC144ES
Q853	8-729-119-78 s	TRANSISTOR 2SC2785
Q854	8-729-900-36 s	TRANSISTOR DTC124ES

(SV-112B BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q855	8-729-119-78 s	TRANSISTOR 2SC2785
Q856	8-729-900-36 s	TRANSISTOR DTC124ES
Q857	8-729-900-89 s	TRANSISTOR DTC144ES
Q900	8-729-119-78 s	TRANSISTOR 2SC2785
Q901	8-729-119-78 s	TRANSISTOR 2SC2785
Q902	8-729-119-78 s	TRANSISTOR 2SC2785
Q903	8-729-119-78 s	TRANSISTOR 2SC2785
Q905	8-729-603-50 s	TRANSISTOR 2SC403SP
Q906	8-729-900-89 s	TRANSISTOR DTC144ES
Q907	8-729-900-89 s	TRANSISTOR DTC144ES
Q908	8-729-119-78 s	TRANSISTOR 2SC2785
Q909	8-729-900-89 s	TRANSISTOR DTC144ES
Q911	8-729-119-78 s	TRANSISTOR 2SC2785
Q912	8-729-201-05 s	TRANSISTOR 2SC2878-B
Q913	8-729-603-50 s	TRANSISTOR 2SC403SP
Q914	8-729-119-76 s	TRANSISTOR 2SA1175
Q915	8-729-900-89 s	TRANSISTOR DTC144ES
R12	1-247-895-00 s	CARBON 470K 5% 1/4W
R13	1-247-881-00 s	CARBON 120K 5% 1/4W
R14	1-247-903-00 s	CARBON 1M 5% 1/4W
R15	1-247-903-00 s	CARBON 1M 5% 1/4W
R17	1-247-895-00 s	CARBON 470K 5% 1/4W
R35	1-247-901-11 s	CARBON 820K 5% 1/4
R36	1-247-886-11 s	CARBON 200K 5% 1/4W
R42	▲1-207-621-00 s	WIREWOUND 1.5 10% 3W
R111	1-247-893-11 s	CARBON 390K 5% 1/4W
R125	1-247-887-00 s	CARBON 220K 5% 1/4W
R147	1-247-895-00 s	CARBON 470K 5% 1/4W
R150	1-247-903-00 s	CARBON 1M 5% 1/4W
R151	1-247-891-00 s	CARBON 330K 5% 1/4W
R162	1-247-895-00 s	CARBON 470K 5% 1/4W
R172	1-247-891-00 s	CARBON 330K 5% 1/4W
R175	1-247-903-00 s	CARBON 1M 5% 1/4W
R176	1-247-887-00 s	CARBON 220K 5% 1/4W
R178	1-247-895-00 s	CARBON 470K 5% 1/4W
R223	1-247-897-11 s	CARBON 560K 5% 1/4W
R224	1-247-897-11 s	CARBON 560K 5% 1/4W
R260	1-247-895-00 s	CARBON 470K 5% 1/4W
R305	1-247-903-00 s	CARBON 1M 5% 1/4W
R306	1-247-895-00 s	CARBON 470K 5% 1/4W
R310	1-247-903-00 s	CARBON 1M 5% 1/4W
R311	1-247-895-00 s	CARBON 470K 5% 1/4W
R315	1-247-903-00 s	CARBON 1M 5% 1/4W
R326	1-247-883-00 s	CARBON 150K 5% 1/4W
R328	1-247-903-00 s	CARBON 1M 5% 1/4W
R414	1-247-744-11 s	CARBON 270 5% 1/2W
R426	1-247-901-11 s	CARBON 820K 5% 1/4
R432	1-247-903-00 s	CARBON 1M 5% 1/4W
R433	1-247-889-00 s	CARBON 270K 5% 1/4W
R461	▲1-207-636-00 s	WIREWOUND 100 10% 3W
R759	1-247-883-00 s	CARBON 150K 5% 1/4W
R855	1-247-892-11 s	CARBON 360K 5% 1/4W
R856	1-247-860-11 s	CARBON 16K 5% 1/4W
R857	1-247-903-00 s	CARBON 1M 5% 1/4W
R858	1-247-903-00 s	CARBON 1M 5% 1/4W
R866	1-247-897-11 s	CARBON 560K 5% 1/4W
R867	1-247-897-11 s	CARBON 560K 5% 1/4W
R873	1-247-903-00 s	CARBON 1M 5% 1/4W

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SV-112B BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R876	1-247-903-00	s CARBON 1M 5% 1/4W
R892	1-247-848-11	s CARBON 5.1K 5% 1/4W
R917	1-247-883-00	s CARBON 150K 5% 1/4W
R928	1-247-899-11	s CARBON 680K 5% 1/4W
R929	1-247-899-11	s CARBON 680K 5% 1/4W
R961	1-247-903-00	s CARBON 1M 5% 1/4W
RV1	1-228-994-00	s RES, ADJ, METAL 10K
RV2	1-228-990-00	s RES, ADJ, METAL 1K
RV100	1-228-994-00	s RES, ADJ, METAL 10K
RV101	1-228-994-00	s RES, ADJ, METAL 10K
RV102	1-228-994-00	s RES, ADJ, METAL 10K
RV106	1-228-993-00	s RES, ADJ, METAL 4.7K
RV107	1-228-995-00	s RES, ADJ, METAL 22K
RV201	1-228-990-00	s RES, ADJ, METAL 1K
RV402	1-228-996-00	s RES, ADJ, METAL 47K
RV404	1-228-996-00	s RES, ADJ, METAL 47K
RV405	1-228-996-00	s RES, ADJ, METAL 47K
RV406	1-228-997-00	s RES, ADJ, METAL 100K
RV850	1-228-999-00	s RES, ADJ, METAL 470K
RV851	1-228-996-00	s RES, ADJ, METAL 47K
RV853	1-228-999-00	s RES, ADJ, METAL 470K
RV854	1-228-999-00	s RES, ADJ, METAL 470K
RV900	1-228-996-00	s RES, ADJ, METAL 47K
X1	1-567-504-11	s CRYSTAL 4.433619MHz
X2	1-567-962-11	s CRYSTAL 8.000000MHz
X3	1-567-132-00	s RESONATOR, CERAMIC 8.00MHz

SW-315B BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6729-877-A	o MOUNTED CIRCUIT BOARD, SW-315B
CN917	1-506-471-11	o CONNECTOR, 6P, MALE
D1	8-719-802-24	s DIODE TLUY154
D2	8-719-802-24	s DIODE TLUY154
D3	8-719-802-11	s LED TLUG154, GRN
D4	8-719-802-11	s LED TLUG154, GRN
D5	8-719-802-24	s DIODE TLUY154
D6	8-719-802-11	s LED TLUG154, GRN
D7	8-719-110-03	s DIODE RD7.5ES-B2
Q1	8-729-119-78	s TRANSISTOR 2SC2785
Q2	8-729-119-78	s TRANSISTOR 2SC2785
Q3	8-729-119-76	s TRANSISTOR 2SA1175
S1	1-516-963-00	s SWITCH, LEVER SLIDE
S2	1-571-116-11	s SWITCH, LEVER SLIDE
S3	1-516-995-00	s SWITCH, LEVER SLIDE
S4	1-571-116-11	s SWITCH, LEVER SLIDE
S6	1-571-116-11	s SWITCH, LEVER SLIDE

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

SY-141B BOARD

Ref. No.

or Q'ty Part No. SP Description

1pc	▲A-6727-092-A	o MOUNTED CIRCUIT BOARD, SY-141B
1pc	2-371-561-00	s BUSHING (P), INSULATING
1pc	3-703-037-00	s INSULATOR, T0-220
1pc	7-682-650-09	s SCREW +PS 3X12
1pc	7-684-023-04	s N 3, TYPE 2
6pcs	7-682-903-11	s SCREW +PWH 3X6
C1	1-102-110-00	s CERAMIC 220PF 10% 50V
C2	1-102-110-00	s CERAMIC 220PF 10% 50V
C4	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C5	1-124-589-11	s ELECT 47uF 20% 16V
C6	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C7	1-131-351-00	s TANTALUM 4.7uF 10% 35V
C8	1-126-160-11	s ELECT 1uF 20% 50V
C9	1-124-248-00	s ELECT 22uF 20% 35V
C10	1-124-589-11	s ELECT 47uF 20% 16V
C11	1-126-163-11	s ELECT 4.7uF 20% 50V
C14	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C15	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C16	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C19	1-124-589-11	s ELECT 47uF 20% 16V
C20	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C21	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C31	1-102-973-00	s CERAMIC 100PF 5% 50V
C48	1-162-207-31	s CERAMIC 22PF 5% 50V
C49	1-162-207-31	s CERAMIC 22PF 5% 50V
C101	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C102	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C302	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C304	1-162-210-31	s CERAMIC 30PF 5% 50V
C305	1-162-210-31	s CERAMIC 30PF 5% 50V
C306	1-161-055-00	s CERAMIC 0.022uF 10% 50V
C307	1-124-465-00	s ELECT 0.47uF 20% 50V
C310	1-124-589-11	s ELECT 47uF 20% 16V
C311	1-126-160-11	s ELECT 1uF 20% 50V
C312	1-124-589-11	s ELECT 47uF 20% 16V
C313	1-126-101-11	s ELECT 100uF 20% 16V
C314	1-162-286-31	s CERAMIC 220PF 10% 50V
C315	1-161-020-11	s CERAMIC 0.039uF 10% 25V
C317	1-126-160-11	s ELECT 1uF 20% 50V
C318	1-131-358-00	s TANTALUM 6.8uF 10% 25V
C327	1-126-160-11	s ELECT 1uF 20% 50V
C328	1-124-261-00	s ELECT 10uF 20% 50V
C329	1-124-589-11	s ELECT 47uF 20% 16V
C330	1-126-160-11	s ELECT 1uF 20% 50V
C335	1-162-215-31	s CERAMIC 47PF 5% 50V
C407	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C410	1-162-282-31	s CERAMIC 100PF 10% 50V
C501	1-126-101-11	s ELECT 100uF 20% 16V
C502	1-161-055-00	s CERAMIC 0.022uF 10% 50V
C503	1-126-101-11	s ELECT 100uF 20% 16V
C504	1-126-101-11	s ELECT 100uF 20% 16V
C505	1-126-101-11	s ELECT 100uF 20% 16V
C506	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C507	1-161-041-00	s CERAMIC 0.0015uF 10% 50V
C508	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C509	1-124-248-00	s ELECT 22uF 20% 35V
C510	1-124-248-00	s ELECT 22uF 20% 35V
C511	1-124-261-00	s ELECT 10uF 20% 50V

(SY-141B BOARD)

Ref. No.

or Q'ty Part No. SP Description

C512	1-162-286-31	s CERAMIC 220PF 10% 50V
C513	1-162-282-31	s CERAMIC 100PF 10% 50V
C514	1-162-282-31	s CERAMIC 100PF 10% 50V
C516	1-161-379-00	s CERAMIC 0.01uF 20% 25V
CN517	1-506-471-11	s CONNECTOR, 6P, MALE
CN520	1-506-471-11	s CONNECTOR, 6P, MALE
CNI2	1-526-659-00	s SOCKET, IC 28P
CV401	1-141-404-11	s CAP, TRIMMER 30PF
D2	8-719-911-19	s DIODE 1SS119
D3	8-719-911-19	s DIODE 1SS119
D4	8-719-911-19	s DIODE 1SS119
D5	8-719-911-19	s DIODE 1SS119
D6	8-719-911-19	s DIODE 1SS119
D10	8-719-911-19	s DIODE 1SS119
D11	8-719-911-19	s DIODE 1SS119
D12	8-719-911-19	s DIODE 1SS119
D301	8-719-911-19	s DIODE 1SS119
D302	8-719-911-19	s DIODE 1SS119
D303	8-719-911-19	s DIODE 1SS119
D304	8-719-911-19	s DIODE 1SS119
D305	8-719-911-19	s DIODE 1SS119
D306	8-719-911-19	s DIODE 1SS119
D307	8-719-911-19	s DIODE 1SS119
D308	8-719-911-19	s DIODE 1SS119
D309	8-719-911-19	s DIODE 1SS119
D310	8-719-911-19	s DIODE 1SS119
D311	8-719-911-19	s DIODE 1SS119
D312	8-719-911-19	s DIODE 1SS119
D313	8-719-911-19	s DIODE 1SS119
D314	8-719-911-19	s DIODE 1SS119
D315	8-719-911-19	s DIODE 1SS119
D316	8-719-911-19	s DIODE 1SS119
D317	8-719-911-19	s DIODE 1SS119
D320	8-719-911-19	s DIODE 1SS119
D321	8-719-911-19	s DIODE 1SS119
D501	8-719-911-19	s DIODE 1SS119
D502	8-719-911-19	s DIODE 1SS119
D503	8-719-911-55	s DIODE U05G
D510	8-719-911-19	s DIODE 1SS119
IC1	8-759-208-85	s IC TMP284C011AF
IC2	--PENDING---	s IC MBM27C256A-25CZ
IC3	8-752-328-10	s IC CXK5864BP-10L
IC4	8-752-323-26	s IC CXK1009P
IC5	8-759-916-84	s IC LH0084A
IC6	8-759-938-68	s IC CXD1095Q
IC8	8-759-345-38	s IC HD145388P
IC9	8-759-202-74	s IC TC74HC04P
IC10	8-759-917-46	s IC 74F11PC
IC11	8-759-004-64	s IC MC74HC126N
IC12	8-759-008-57	s IC MC34051P
IC13	8-759-202-21	s IC TC74HC32P
IC14	8-759-202-89	s IC TC74HC139P
IC17	8-759-904-83	s IC 74F32PC
IC18	8-759-916-20	s IC SN74HC14N
IC101	8-759-145-58	s IC UPC4558C
IC102	8-759-145-58	s IC UPC4558C

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SY-141B BOARD)

Ref. No. or Q'ty	Part No.	SP Description
IC103	8-759-240-53	s IC TC4053BP
IC104	8-759-240-69	s IC TC4069UBP
IC105	8-759-340-13	s IC HD14013BP
IC301	8-759-240-69	s IC TC4069UBP
IC302	8-759-202-14	s IC TC74HC08P
IC303	8-759-345-38	s IC HD14538BP
IC304	8-759-135-80	s IC UPC358C
IC305	8-759-600-24	s IC M54543L
IC306	8-759-600-24	s IC M54543L
IC307	8-759-984-92	s IC MB88551H-330M
IC311	8-759-240-69	s IC TC4069UBP
IC315	8-759-145-58	s IC UPC4558C
IC316	8-759-981-64	s IC LM2903DQ
IC318	8-759-240-69	s IC TC4069UBP
IC401	8-759-202-74	s IC TC74HC04P
IC403	8-759-345-38	s IC HD14538BP
IC404	8-759-916-29	s IC SN74HC74N
IC405	8-759-908-23	s IC MB88303
PS503	▲1-532-679-00	s LINK, IC 0.6A
PS504	▲1-532-685-00	s LINK, IC 0.8A
PS601	1-532-675-00	s LINK, IC 1.5A
PS602	▲1-532-769-21	s FUSE 0.2A 125V
Q2	8-729-900-65	s TRANSISTOR DTA144ES
Q3	8-729-900-89	s TRANSISTOR DTC144ES
Q4	8-729-900-89	s TRANSISTOR DTC144ES
Q5	8-729-281-52	s TRANSISTOR 2SC1815-Y
Q6	8-729-281-52	s TRANSISTOR 2SC1815-Y
Q301	8-729-177-42	s TRANSISTOR 2SD774-3
Q302	8-729-119-78	s TRANSISTOR 2SC2785
Q303	8-729-889-40	s TRANSISTOR 2SD894
Q304	8-729-119-78	s TRANSISTOR 2SC2785
Q305	8-729-119-78	s TRANSISTOR 2SC2785
Q306	8-729-119-78	s TRANSISTOR 2SC2785
Q307	8-729-119-78	s TRANSISTOR 2SC2785
Q308	8-729-119-78	s TRANSISTOR 2SC2785
Q309	8-729-900-89	s TRANSISTOR DTC144ES
Q310	8-729-119-76	s TRANSISTOR 2SA1175
Q311	8-729-900-89	s TRANSISTOR DTC144ES
Q312	8-729-119-76	s TRANSISTOR 2SA1175
Q313	8-729-900-89	s TRANSISTOR DTC144ES
Q314	8-729-900-89	s TRANSISTOR DTC144ES
Q315	8-729-119-78	s TRANSISTOR 2SC2785
Q316	8-729-119-78	s TRANSISTOR 2SC2785
Q317	8-729-900-89	s TRANSISTOR DTC144ES
Q318	8-729-900-89	s TRANSISTOR DTC144ES
Q319	8-729-900-89	s TRANSISTOR DTC144ES
Q336	8-729-900-89	s TRANSISTOR DTC144ES
Q337	8-729-900-89	s TRANSISTOR DTC144ES
Q341	8-729-811-11	s TRANSISTOR 2SD1111
Q342	8-729-119-78	s TRANSISTOR 2SC2785
Q401	8-729-900-89	s TRANSISTOR DTC144ES
Q501	8-729-382-64	s TRANSISTOR 2SC1826-G
R8	1-247-881-00	s CARBON 120K 5% 1/4W
R11	1-247-903-00	s CARBON 1M 5% 1/4W
R311	▲1-207-674-00	s WIREWOUND 0.68 10% 4W
R320	1-247-883-00	s CARBON 150K 5% 1/4W
R321	1-247-882-11	s CARBON 130K 5% 1/4W
R325	1-247-891-00	s CARBON 330K 5% 1/4W

(SY-141B BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R327	1-247-887-00	s CARBON 220K 5% 1/4W
R332	1-247-891-00	s CARBON 330K 5% 1/4W
R344	1-247-887-00	s CARBON 220K 5% 1/4W
R347	1-247-887-00	s CARBON 220K 5% 1/4W
R359	1-247-881-00	s CARBON 120K 5% 1/4W
R360	1-247-881-00	s CARBON 120K 5% 1/4W
R509	1-247-903-00	s CARBON 1M 5% 1/4W
R510	1-247-895-00	s CARBON 470K 5% 1/4W
R515	1-247-903-00	s CARBON 1M 5% 1/4W
R516	1-247-895-00	s CARBON 470K 5% 1/4W
R526	1-247-903-00	s CARBON 1M 5% 1/4W
RB3	1-231-410-00	s RESISTOR BLOCK 10Kx8
RB6	1-235-109-00	s RESISTOR BLOCK 22Kx8
RB7	1-235-109-00	s RESISTOR BLOCK 22Kx8
RB10	1-231-410-00	s RESISTOR BLOCK 10Kx8
RB11	1-231-410-00	s RESISTOR BLOCK 10Kx8
RV1	1-230-497-11	s RES, ADJ, METAL 22K
RV2	1-230-720-11	s RES, ADJ, CARBON 4.7K
RV3	1-230-720-11	s RES, ADJ, CARBON 4.7K
RV4	1-230-497-11	s RES, ADJ, METAL 22K
X1	1-567-870-11	s RESONATOR, CERAMIC 614KHz
X302	1-567-132-00	s RESONATOR, CERAMIC 8.00MHz

TG-22 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-618-597-11	o PRINTED CIRCUIT BOARD, TG-22
D1	8-719-905-56	s LED EBR5504S, RED

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

UR-02

Ref. No.

or Q'ty Part No. SP Description

1pc Δ 1-413-075-00 o REGULATOR, SWITCHING UR-02

1pc 1-605-531-00 o PRINTED CIRCUIT BOARD, M

C101 Δ 1-130-711-00 s FILM 0.22uF 20% 250V

C102 Δ 1-162-599-12 s CERAMIC 0.0047uF 20% 400V

C103 Δ 1-162-599-12 s CERAMIC 0.0047uF 20% 400V

C104 Δ 1-162-599-12 s CERAMIC 0.0047uF 20% 400V

C105 Δ 1-162-599-12 s CERAMIC 0.0047uF 20% 400V

C106 Δ 1-161-742-00 s CERAMIC 0.0022uF 20% 400V

C107 Δ 1-161-742-00 s CERAMIC 0.0022uF 20% 400V

C108 Δ 1-161-742-00 s CERAMIC 0.0022uF 20% 400V

C109 Δ 1-161-742-00 s CERAMIC 0.0022uF 20% 400V

C111 1-125-268-00 s ELECT 47uF 20% 400V

C112 1-125-267-00 s ELECT 300uF 20% 400V

C113 1-123-659-00 s ELECT 4.7uF 20% 250V

C114 1-123-659-00 s ELECT 4.7uF 20% 250V

C115 1-136-201-11 s FILM 0.22uF 5% 400V

C201 1-161-913-00 s CERAMIC 680PF 10% 500V

C204 1-161-913-00 s CERAMIC 680PF 10% 500V

C206 1-162-200-31 s CERAMIC 11PF 5% 50V

C207 1-162-200-31 s CERAMIC 11PF 5% 50V

C208 1-162-200-31 s CERAMIC 11PF 5% 50V

C209 1-123-663-00 s ELECT 220uF 20% 6.3V

C210 1-124-887-00 s ELECT 3300uF 20% 16V

C211 1-124-887-00 s ELECT 3300uF 20% 16V

C212 1-124-887-00 s ELECT 3300uF 20% 16V

C213 1-124-887-00 s ELECT 3300uF 20% 16V

C214 1-162-200-31 s CERAMIC 11PF 5% 50V

C215 1-161-925-00 s CERAMIC 100PF 10% 500V

CN101 Δ 1-560-437-00 s CONNECTOR, VASE 4P, MALE "AC IN"

CN201 1-560-438-00 s CONNECTOR, VASE 5P, MALE "OUT"

D101 8-719-108-08 s DIODE AC03FGMAY

D102 8-719-911-55 s DIODE U05G

D103 8-719-911-55 s DIODE U05G

D104 8-719-911-55 s DIODE U05G

D105 8-719-911-55 s DIODE U05G

D201 8-719-908-00 s DIODE ESAC33-02CS

D202 8-719-908-00 s DIODE ESAC33-02CS

D203 8-719-908-00 s DIODE ESAC33-02CS

D204 8-719-111-44 s DIODE F114D

D205 8-719-110-41 s DIODE RD15ES-B2

D206 8-719-200-02 s DIODE 10E2

F101 Δ 1-532-604-21 s FUSE, THERMAL 130-DEG-C 3A

L101 Δ 1-459-215-00 s COIL

L102 Δ 1-459-215-00 s COIL

L201 1-421-398-12 s COIL, CHOKE

L202 1-421-370-00 s COIL, CHOKE

L203 1-421-431-00 s COIL, CHOKE

Q101 1-807-799-11 s TRANSISTOR 2SC3042

Q102 1-807-799-11 s TRANSISTOR 2SC3042

Q201 8-729-331-53 s TRANSISTOR 2SC2315

R101 Δ 1-205-631-00 s WIREWOUND 15 5% 5W

R103 Δ 1-247-690-11 s CARBON 15 5% 1/4W

R104 Δ 1-247-690-11 s CARBON 15 5% 1/4W

R106 1-247-704-11 s CARBON 220 5% 1/4W

R107 Δ 1-247-698-11 s CARBON 68 5% 1/4W

(UR-02)

Ref. No.

or Q'ty Part No. SP Description

R201 Δ 1-205-641-00 s WIREWOUND 330 5% 5W

R202 1-535-369-00 s SHUNT 0.02 5% 2W

R203 1-247-705-11 s CARBON 270 5% 1/4W

R204 Δ 1-202-860-00 s COMP 100 1/4W

R205 1-535-369-00 s SHUNT 0.02 5% 2W

R206 Δ 1-247-090-00 s CARBON 20 5% 1/4W

R207 Δ 1-532-605-00 s LINK, IC 0.4A

R208 Δ 1-202-860-00 s COMP 100 1/4W

R209 Δ 1-202-860-00 s COMP 100 1/4W

T101 Δ 1-447-052-00 s TRANSFORMER, CONVERTER

T102 Δ 1-421-468-00 s TRANSFORMER, LINE FILTER

T103 Δ 1-447-106-00 s TRANSFORMER, DRIVE

T104 Δ 1-447-053-00 s TRANSFORMER, CONVERTER

T201 1-421-467-00 s COIL, CHOKE

1pc 1-605-532-00 o PRINTED CIRCUIT BOARD, S

C002 1-131-361-00 s TANTALUM 2.2uF 10% 20V

C003 1-126-101-11 s ELECT 100uF 20% 16V

D001 8-719-900-95 s DIODE V09G

D002 8-719-900-95 s DIODE V09G

D003 8-719-109-85 s DIODE RD5.1ES-B2

D004 8-719-911-19 s DIODE 1SS119

D005 8-719-911-19 s DIODE 1SS119

D006 8-719-911-19 s DIODE 1SS119

D007 8-719-911-19 s DIODE 1SS119

D008 8-719-109-75 s DIODE RD4.3ES-B2

Q001 8-729-100-12 s TRANSISTOR 2SC2001-L

Q002 8-729-105-97 s TRANSISTOR 2SA1156-2K

Q001 8-729-175-22 s TRANSISTOR 2SC2752

R001 Δ 1-246-545-00 s CARBON 1M 1% 1/4W

R002 Δ 1-246-545-00 s CARBON 1M 1% 1/4W

R003 Δ 1-247-704-11 s CARBON 220 5% 1/4W

R004 Δ 1-247-704-11 s CARBON 220 5% 1/4W

R005 Δ 1-247-698-11 s CARBON 68 5% 1/4W

R006 1-247-721-11 s CARBON 4.7K 5% 1/4W

R007 Δ 1-246-545-00 s CARBON 1M 1% 1/4W

R008 1-247-708-11 s CARBON 470 5% 1/4W

R009 1-247-721-11 s CARBON 4.7K 5% 1/4W

1pc 1-605-679-00 o PRINTED CIRCUIT BOARD, C

C301 1-130-652-00 s FILM 0.0036uF 2% 100V

C303 1-123-332-00 s ELECT 47uF 20% 25V

C304 1-123-356-00 s ELECT 10uF 20% 50V

C305 1-136-159-00 s FILM 0.033uF 5% 50V

C306 1-162-200-31 s CERAMIC 11PF 5% 50V

D301 8-719-200-02 s DIODE 10E2

D302 8-719-110-41 s DIODE RD15ES-B2

D303 8-719-911-19 s DIODE 1SS119

IC301 8-759-904-94 s IC TL494CN

Q301 8-729-173-36 s TRANSISTOR 2SA733-Q

R301 1-247-719-11 s CARBON 3.3K 5% 1/4W

R302 Δ 1-247-696-11 s CARBON 47 5% 1/4W

R303 1-247-700-11 s CARBON 100 5% 1/4W

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(UR-02)

Ref. No. or Q'ty	Part No.	SP Description
R304	1-247-720-11 s	CARBON 3.9K 5% 1/4W
	1-247-146-00 s	CARBON 4.3K 5% 1/4W
	1-247-721-11 s	CARBON 4.7K 5% 1/4W
	1-247-148-00 s	CARBON 5.1K 5% 1/4W
	1-247-722-11 s	CARBON 5.6K 5% 1/4W
R305	1-249-460-11 s	CARBON 15K 5% 1/4W
R306	1-247-725-11 s	CARBON 10K 5% 1/4W
R307	1-247-721-11 s	CARBON 4.7K 5% 1/4W
R308	1-247-721-11 s	CARBON 4.7K 5% 1/4W
R309	1-247-132-00 s	CARBON 1.1K 5% 1/4W
R310	1-247-721-11 s	CARBON 4.7K 5% 1/4W
R311	1-247-721-11 s	CARBON 4.7K 5% 1/4W
R312	1-249-469-11 s	CARBON 100K 5% 1/4W
R313	1-247-722-11 s	CARBON 5.6K 5% 1/4W
R314	1-247-721-11 s	CARBON 4.7K 5% 1/4W
R315	1-246-539-00 s	CARBON 560K 5% 1/4W
RV301	1-226-826-00 s	RES, ADJ, METAL 300

VR-80 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-629-479-11 o	PRINTED CIRCUIT BOARD, VR-80
ME1001A	1-520-393-00 s	METER, AUDIO
ME1001B	1-520-393-00 s	METER, AUDIO
ME1002	1-520-440-00 s	METER, VIDEO
RV1	1-238-483-11 s	RES, VAR, CARBON 5K "AUDIO CH-1 REC"
RV2	1-238-483-11 s	RES, VAR, CARBON 5K "AUDIO CH-2 REC"
RV3	1-237-713-11 s	RES, VAR, CARBON 100K "TRACKING CONTROL"
RV4	1-238-484-11 s	RES, VAR, CARBON 10K "VIDEO LEVEL"
S1021	1-516-961-00 s	SWITCH, LEVER SLIDE "AUDIO LIMITER"
S1022	1-516-961-00 s	SWITCH, LEVER SLIDE "VIDEO AUTO"

FRAME

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6709-675-A s	HEAD DRUM ASS'Y, DUH-44B-R
1pc	A-6709-617-A s	UPPER DRUM ASS'Y, DUR-44-R
1pc	▲1-413-075-00 s	REGULATOR, SWITCHING UR-02
1pc	▲1-532-237-11 s	FUSE 3.15A 250V
2pcs	▲1-532-286-11 s	FUSE 2.5A 250V
CN1001	▲1-560-222-11 s	INLET, AC 3P, MALE "AC IN"
CN1002	1-561-577-21 s	SOCKET, DIP 8P, MALE "MONITOR TV"
CN1003	1-507-467-00 s	JACK, PIN 1P, FEMALE "MONITOR AUDIO"
CN1004	1-562-227-21 s	CONNECTOR, BNC, MALE "MONITOR VIDEO"
CN1005	1-562-227-21 s	CONNECTOR, BNC, MALE "TIME CODE OUT"
CN1006	1-562-227-21 s	CONNECTOR, BNC, MALE "TIME CODE IN"
CN1007	1-562-227-21 s	CONNECTOR, BNC, MALE "VIDEO IN 1"
CN1008	1-562-227-21 s	CONNECTOR, BNC, MALE "VIDEO IN 2"
CN1009	1-562-227-21 s	CONNECTOR, BNC, MALE "SYNC IN"
CN1010	1-562-227-21 s	CONNECTOR, BNC, MALE "RF (OFF TAPE)"
CN1011	1-562-227-21 s	CONNECTOR, BNC, MALE "VIDEO OUT"
CN1013	1-561-045-00 s	CONNECTOR, RF 7P, MALE "DUB OUT"
CN1014	1-566-622-11 s	CONNECTOR, CIRCLE (R-M) 7P, MALE "DUB IN"
CN1015	1-563-029-21 s	CONNECTOR, XLR 3P, FEMALE "AUDIO LINE IN CH-1/L"
CN1016	1-563-029-21 s	CONNECTOR, XLR 3P, FEMALE "AUDIO LINE IN CH-2/R"
CN1017	1-563-030-21 s	CONNECTOR, XLR 3P, MALE "AUDIO LINE OUT CH-1/L"
CN1018	1-563-030-21 s	CONNECTOR, XLR 3P, MALE "AUDIO LINE OUT CH-2/R"
CN1019	1-507-797-21 s	JACK, PHONE, STEREO "MICROPHONES CH-1/CH-2"
CN1020	1-507-854-00 s	JACK, PHONE "HEAD PHONES"
H1001	8-825-514-20 s	HEAD, CTL PP170-58 "CTL PB"
H1002	8-825-544-20 s	HEAD, ERASE EF245-58 "FULL ERASE"
H1003	8-825-578-22 s	HEAD, ACE EPS264-5803 "AUDIO/CTL/ERASE"
H1004	8-825-771-31 s	HEAD, TIME CODE PP295-58 "TIME CODE"
M1001	8-835-258-02 s	MOTOR, DC BHF-1915B "CAPSTAN"
M1003	1-541-376-11 s	MOTOR, DC DNR-4700A "THREADING"
M1005	8-835-179-01 s	MOTOR, DC MCB2B15 "CASSETTE COMPARTMENT"
M1006	8-835-178-01 s	MOTOR, DC FN30-T26N1E "REEL"

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

16-4. PACKING MATERIAL AND ACCESSORIES

(FRAME)

Ref. No. or Q'ty	Part No.	SP Description
ME1001	1-520-393-00	s METER, AUDIO "AUDIO LEVEL CH-1"
ME1002	1-520-393-00	s METER, AUDIO "AUDIO LEVEL CH-2"
ME1003	1-520-440-00	s METER, VIDEO "VIDEO LEVEL/TRACKING"
PM1001	1-454-415-11	s SOLENOID "TAKE-UP IDLER"
PM1002	1-454-417-41	s SOLENOID "TAKE-UP BRAKE"
PM1004	1-454-415-11	s SOLENOID "SUPPLY IDLER"
PM1005	1-454-417-41	s SOLENOID "SUPPLY BRAKE"
PM1006	1-454-446-11	s SOLENOID "SKEW"
PM1007	1-454-417-41	s SOLENOID "SEARCH"
PM1008	1-454-416-31	s SOLENOID "PINCH"
S1001	▲1-570-117-41	s SWITCH, ROCKER "POWER"
	1-561-427-00	s HOUSING, 3P
S1002	1-571-083-21	s SWITCH, SLIDE "75 ohm"
	1-215-394-00	s METAL 75 1% 1/6W
S1003	1-554-423-00	s SWITCH, SLIDE "COLOR LOCK"

PACKING MATERIALS & SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP Description
1pc	▲1-556-760-11	s CORD, POWER 3P
1pc	3-672-720-00	o BAG, PROTECTION
1pc	3-733-670-01	o CUSHION (UPPER)
1pc	3-733-671-01	o CUSHION (LOWER)
1pc	3-733-672-01	o INDIVIDUAL CARTON
1pc	▲3-786-852-11	s MANUAL, INSTRUCTION

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

16-5. FIXTURE (OPTION)

OPTIONAL FIXTURE

Part No. SP Description

J-6001-820-A o DRUM ECCENTRICITY GAUGE (3)
J-6001-830-A o DRUM ECCENTRICITY GAUGE (2)
J-6001-840-A o DRUM ECCENTRICITY GAUGE (1)
J-6001-930-A o DRUM ECCENTRICITY GAUGE (4)
J-6009-830-A o FLATNESS PLATE

J-6026-240-A o ADJUSTMENT DRIVER
J-6130-010-A o REEL TABLE HEIGHT CHECK BASE TOOL
J-6130-020-A o REEL TABLE HEIGHT CHECK TOOL
J-6153-020-A o DIHEDRAL ADJUSTMENT DRIVER
J-6150-140-A o ECCENTRICITY SCREWDRIVER 6 MM DIA.

J-6153-580-A o PINCH LEVER ADJUSTMENT TOOL
Y-2031-001-0 o CLEANING FLUID
2-034-697-00 o CLEANING PIECE
3-702-216-01 o BACK TENSION ADJUSTMENT TOOL
7-661-018-01 o SONY OIL

7-732-050-20 o TENSION SCALE (50g full scale)
7-732-050-30 o TENSION SCALE (100g full scale)
7-732-050-40 o TENSION SCALE (200g full scale)
7-732-050-50 o TENSION SCALE (500g full scale)
8-899-999-53 o TORQUE MEASUREMENT TAPE

8-960-020-62 o ALIGNMENT TAPE RR5-2SB PAL
8-960-035-61 o ALIGNMENT TAPE RR5-2SC PAL
8-960-036-02 o ALIGNMENT TAPE RR2-1SD PAL
8-960-036-80 o ALIGNMENT TAPE RR5-1SD PAL
9-911-053-00 o THICKNESS GAUGE

NOTE: Please see pages 16-39 thru 16-43 for the parts that
are not listed in the parts list.